U.S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 2004

REMAINING ITEMS

Budgetary information will not be released
Outside the Department of the Army until
3 February 2003

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2004

REMAINING ITEMS

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SUMMARY OF REMAINING ITEMS
LEGISLATIVE PROPOSAL

The Office of Management and Budget has proposed that, beginning in Fiscal Year 2004, each federal agency should contribute the full amount of actuarial retirement costs of its Civil Service Retirement System (CSRS) employees and the costs of post-retirement health benefits for all of its current employees participating in the Federal Employee Health Benefits (FEHB) program. This proposal is based on the premise that each federal agency should budget for all costs associated with its former and present employees.

Costs by appropriation title are shown below.

Appropriation Title	**($Millions)**
General, Investigations	$ 5,000,000
Construction, General	21,000,000
Operation and Maintenance, General	56,000,000
Regulatory Program	7,000,000
Flood Control, Mississippi River and Tributaries	7,000,000
General Expenses	6,000,000
Flood Control and Coastal Emergencies	2,000,000
Formerly Utilized Sites Remedial Action Program (FUSRAP)	1,000,000
Harbor Maintenance Trust Fund	2,000,000
Inland Waterways Trust Fund	1,000,000
Rivers and Harbors Contributions	10,000,000
TOTALS	**$ 118,000,000**

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SUMMARY OF REMAINING ITEMS

GENERAL INVESTIGATIONS

	FY 2003 Conference	FY 2004 Request	Increase (Decrease)
	$	$	$
1. Surveys	To be determined	16,350,000	N/A
c. Special Studies	To be determined	5,500,000	N/A
e. Coordination with Other Federal Agencies, States, and Non-Federal Interests	To be determined	10,850,000	N/A
(1) Planning Assistance to States	To be determined	6,000,000	N/A
(2) Other Coordination Programs			
(a) Special Investigations	To be determined	2,200,000	N/A
(b) Gulf of Mexico Program	To be determined	100,000	N/A
(c) Chesapeake Bay Program	To be determined	100,000	N/A
(d) Pacific Northwest Forest Case Study	To be determined	100,000	N/A
(e) Interagency Water Resources Development	To be determined	1,100,000	N/A
(f) Interagency and International Support	To be determined	150,000	N/A
(g) Inventory of Dams	To be determined	300,000	N/A
(h) National Estuary Program	To be determined	100,000	N/A
(i) North American Waterfowl Management Plan	To be determined	100,000	N/A
(j) Estuary Habitat Restoration Program	To be determined	100,000	N/A
(k) Coordination with Other Water Resources Agencies	To be determined	300,000	N/A
(l) CALFED	To be determined	100,000	N/A
(m) Lake Tahoe, NV	To be determined	100,000	N/A

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SUMMARY OF REMAINING ITEMS

GENERAL INVESTIGATIONS

	FY 2003 Conference	FY 2004 Request	Increase (Decrease)
	$	$	$
2. Collection and Study of Basic Data	To be determined	13,250,000	N/A
a. Flood Plain Management Services	To be determined	7,500,000	N/A
c. Other Programs			
(1) Stream Gaging (U.S. Geological Survey)	To be determined	500,000	N/A
(2) Precipitation Studies (National Weather Service)	To be determined	300,000	N/A
(3) International Waters Studies	To be determined	400,000	N/A
(4) Hydrologic Studies	To be determined	400,000	N/A
(5) Scientific and Technical Information Centers	To be determined	100,000	N/A
(6) Coastal Field Data Collection	To be determined	2,500,000	N/A
(7) Transportation Systems	To be determined	500,000	N/A
(8) Environmental Data Studies	To be determined	100,000	N/A
(9) Remote Sensing	To be determined	200,000	N/A
(10) Automated Information Systems Support	To be determined	450,000	N/A
(11) Flood Damage Data Program	To be determined	300,000	N/A
3. Research and Development	To be determined	22,000,000	N/A
Totals	To be determined	51,600,000	N/A

APPROPRIATION TITLE: General Investigations, FY 2004

1. Surveys

c. Special Studies

Study	Total Estimated Federal Cost	Allocation Prior to FY 2003	Allocation FY 2003	Tentative Allocation FY 2004	Additional to Complete After FY 2004
National Shoreline	7,000,000	300,000	To Be Determined	500,000	To Be Determined

~~SCOPE:~~

The study is an interagency effort to determine the extent and cause of shoreline erosion on all the coasts of the United States and to assess the economic and environmental impacts of that erosion. The study will analyze the appropriate Federal and non-Federal roles and the advisability of using a systems approach to sediment management for linking the management of all (shore protection, navigation channel dredging, and environmental restoration and preservation) projects in the coastal zone so as to conserve and efficiently manage the flow of sediment within littoral systems.

~~ACCOMPLISHMENTS:~~

FY 2002 funding initiated work on this study. The Fiscal Year 2003 efforts include:

1) Continue updating the June 1996 Report on Shoreline Protection and Beach Erosion Control Study: An Analysis of the U.S. Army Corps of Engineers Shore Protection Program to define the status and performance (both physical and economic) of constructed shore protection projects.

2) Continue monitoring and reviewing progress in the various Regional Sediment Management Demonstration projects around the nation.

3) Continue updating shoreline erosion and development patterns presented in 1971 National Shoreline Study and identify data availability and data needs in order to complete the update

4) Conducting an academic forum to identify areas of needed environmental research from which we will establish the plan for conducting the Environmental Analysis in Fiscal Year 2004.

5) Continue conducting forums to identify areas of needed economic analysis.

~~JUSTIFICATION:~~

FY 2004 funding would continue work on this study. The Fiscal Year 2004 efforts include:

1. $100,000 to continue Environmental Analyses.
2. $100,000 to initiate the economic research and analyses decided upon for the different coastal regions of the nation.
3. $150,000 to (1) conduct a technical forum to identify technical guidelines for collecting and analyzing data on the extent and causes of shoreline erosion and accretion, (2) plan work within Corps Divisions and Districts on a regional basis, and (3) coordinate data collection and analysis efforts with the U.S. Geological Survey and the National Ocean Service; and
4. $100,000 for coordination and initiating regional studies and conduct policy seminar on Regional Sediment Management issues.
5. $50,000 to initiate identification of agency roles and contributions to shoreline management.
6. Section 215 of the Water Resources Development Act of 1999 provides the authority for conducting this study with completion scheduled for 30 Sep 2006.

APPROPRIATION TITLE: General Investigations, FY 2004

1. Surveys

c. Special Studies

Ex Post Facto Benefit-Cost Studies

SCOPE: *Ex Post Facto* benefit-cost studies of 15 to 25 completed projects, situated around the country, and including a variety of project purposes. The purpose is to assess the quality of past predictions provided by the Corps of Engineers of the benefits that a project would provide. The focus of these ex post facto studies will be to investigate the actual project outputs and services that were delivered. Environmental projects will be included with delivery of physical and habitat based outputs rather than dollars as the relevant benefit metric. Results of *ex post* studies will be compared to the studies used to support the project's authorization and/or funding.

SUMMARIZED FINANCIAL DATA:

Estimated One-Year (FY 2004) Program Costs	$2,000,000
Allocation Requested for FY 2004	2,000,000
Balance to Complete Five-Year Program after FY 2004	0
Allocation for FY 2003	0
Change in FY 2004 from 2003	2,000,000
Average Annual Allocation for FY 1999 – 2003	0

JUSTIFICATION: Formal verification of Corps recommendations, in the form of *ex post* evaluation of benefits, are needed to improve the ability of the Corps to recommend sound water resources projects. These data also would be useful to those involved in authorization, budgeting, implementation, and sponsorship of projects. In the case of environmental projects, an investigation of their long-term ecological success can feed back directly to adaptive management activities for further project modifications.

ACCOMPLISHMENTS: New program in FY 2004.

APPROPRIATION TITLE: General Investigations, FY 2004

1. Surveys

c. Special Studies

Independent Review

SCOPE: The Corps planning process strives to address diverse and often contradictory interests on water resources management, restoration, and development. In many cases, interest groups and others express concerns related to the assumptions, data, models, and procedures used by the Corps. The independent review proposed under this program is intended to facilitate the resolution of such concerns in a timely and effective manner; in the long-run, establishing such a process will expedite project delivery. The degree and scope of independent review may vary in accordance with the scope, complexity, cost and the extent of controversy surrounding the proposed project. For some large and complex studies, a totally independent group of outside experts may be required. The activities of this program are: 1) to design and implement a process that ensures the proper level and scope of review; 2) to identify and secure a pool of highly qualified experts in each area of analysis to conduct the reviews; and 3) to conduct the reviews. In some cases, a panel of outside experts will review final feasibility reports in order to inform the recommendation of the Chief of Engineers. It is estimated that approximately 6 large or complex studies will be reviewed per year at a total cost of $3,000,000.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-08) Program Costs	$15,000,000
Allocation Requested for FY 2004	3,000,000
Balance to Complete Five-Year Program after FY 2004	12,000,000
Allocation for FY 2003	0
Change in FY 2004 from 2003	3,000,000
Average Annual Allocation for FY 1999 – 2003	0

JUSTIFICATION: The $3,000,000 requested in FY 2004 for Independent Review would be used to develop a plan of action to design and implement a review process, to identify and secure a pool of highly qualified experts in each area of analysis to conduct the reviews, and to conduct the review of up to 6 complex studies.

ACCOMPLISHMENTS: New program in FY 2004.

APPROPRIATION TITLE: General Investigations, FY 2004

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(1) Planning Assistance to States

SCOPE:
This Corps of Engineers program stems from Section 22 of the Water Resources Development Act of 1974, as amended, which authorizes the Secretary of the Army to assist States, local governments, Indian tribes, and other non-Federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. This assistance is in the form of reconnaissance-level studies which provide information and guidance to help the non-Federal sponsors become more active and effective working partners with the Federal government in resolving water resources problems. The studies are cost-shared on a 50% Federal, 50% non-Federal basis. The program can encompass many types of studies dealing with water resources issues, including environmental conservation/restoration, wetlands evaluation, water supply and demand, water quality, flood damage reduction, coastal zone management, and dam safety.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-2008) Program Cost	$40,000,000
Allocation Requested for FY 2004	6,000,000
Balance to Complete Five-Year Program after FY 2004	34,000,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:
The Planning Assistance to States program has continued to evolve into a highly effective tool for providing technical and planning assistance to states, local governments, and Indian tribes. These customers recognize the need to develop locally-directed solutions to their water resources problems. Interest from states, regional and local governments, Indian tribes, and other non-Federal public agencies in this highly efficient and effective Program continues to grow. The FY 2004 amount will enable the Corps to provide much needed planning and technical assistance to aid them in a wide variety of water resource efforts, including environmental restoration studies, watershed planning, and flood plain management planning. Currently, there are ongoing studies which require additional funds to complete, and a number of studies yet unfunded which have been identified by states, communities, and Indian Tribes as high priority studies. The FY 2004 request will allow the Corps to continue and complete ongoing studies, and initiate additional high priority studies.

ACCOMPLISHMENTS:
In fiscal year 2003, the Corps of Engineers performed 150 studies for 43 states, the District of Columbia and Puerto Rico, as well as two studies for Federally-recognized Indian tribes. These studies provided technical and planning assistance for a full range of water resources issues. Significant efforts involved studies to assist local communities in restoring urban river environments, and accomplishing wetlands identification and mapping studies. In addition, efforts were undertaken to assist states and local governments in ecosystem restoration, drinking water supply and demand, water quality, and flood damage reduction.

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests (Continued)

(2) Other Coordination Programs

Allocation For FY 2003 TBD Tentative Allocation FY 2004 $4,850,000

(a) The Special Investigations request is $2,200,000. The amount of $200,000 provides for the review of preliminary permit and licenses applications for non-Federal hydroelectric power development either at or affecting Corps water resource projects. The amount of $2,000,000 provides for (1) special investigations and reports of nominal scope prepared pursuant to Congressional and other requests from outside the Corps of Engineers for information relative to projects or activities which have no funds; (2) similar work of detailed scope, as specifically authorized by the Chief of Engineers; and (3) review of reports and environmental impact statements of other agencies. Among the investigations paid for from these funds are reconnaissance investigations of flooding potential and flood damages, drainage, harbor improvements, anchorages, and development of navigation channels.

(b) The Gulf of Mexico Program (GMP) request is $100,000. The GMP is formulating and implementing creative solutions to economic and environmental issues with Gulf-wide and national implications. Hypoxia/nutrient enrichment, Habitat, Public Health (Shellfish) and Nonindigenous Species are the focus issue areas, which are linked to authorized Corps missions in the five-state GMP area. The Hypoxia and Habitat focus areas are now getting more emphasis…through the Clean Water Action Plan and links to a multitude of Corps programs. U.S. Environmental Protection Agency-initiated, the GMP is partnership-driven, blending the programs and resources of Federal, state and local governments, with the resources and commitments of business, industry, citizens groups and academia. The Corps has a full time staff member serving as liaison to the GMP Office (GMPO). That individual's primary duty is to provide the linkage between the Southwestern, Mississippi Valley and South Atlantic Major Subordinate Commands and their districts and the current and evolving activities of the GMP/GMPO. Personnel from several districts and divisions serve on various committees and focus area groups. Secondary duties of the Corps liaison include: 1) coordinating with and supporting the Corps representative on the GMP's Management Committee as well as the DOD representative serving on the GMP's Policy Review Board; 2) functioning as the Corps' alternate Management Committee representative; 3) functioning as a GMPO Interagency Management Team Member; 4) mentoring the GMPO Habitat Focus Team; and, 5) serving as a member of the GMPO Hypoxia Focus Team. The Corps liaison also serves as the Corps' functional and program link to the Coastal America-Gulf of Mexico Regional Implementation Team (RIT). The requested funds will allow partial participation of the Corps in implementation of GMP-formulated initiatives.

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (continued)

(c) Chesapeake Bay Program. The amount of $100,000 is requested to continue activities initiated under Special Investigations. The Chesapeake Bay Program (CBP) is an interagency program, initiated by the US Environmental Protection Agency (EPA), for the protection and restoration of the bay's natural resources. These natural resources have tremendous environmental and economic significance to the northeast region and to the Nation. Following extensive Corps of Engineers investigations and EPA studies in the 1970's and early 1980's, it became increasingly clear that the Chesapeake Bay as a system was under intense pressure from development and overuse and was undergoing degradation in water quality, living resources and other ecological indicators. With the funds requested, the Baltimore District will continue participation in the CBP Implementation Committee and the Federal Agencies Subcommittee addressing various subjects such as wetlands, submerged aquatic vegetation, and land stewardship. The Baltimore District will accomplish limited work associated with the lead on two initiatives (Anacostia Biennial Workplan and Chesapeake Bay Habitat Restoration) from the Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay signed in July 1994 and its successor, the Federal Agencies Chesapeake Ecosystem Unified Plan (FACEUP) signed by the ASA(CW) in 1998, as well as participating in workgroups on other aspects of the agreements. ASA(CW) was a signatory on a Special Tributary Strategy for Federal Lands in the District of Columbia agreement that commits the Corps to develop stormwater pollution prevention and nutrients management plans. Many of these actions affect Corps authorized missions in the Chesapeake Bay. It is very important for the Corps representatives to be active members of the CBP Implementation Committee, the Federal Agencies Subcommittee, the Federal Agencies Subcommittee and other working groups.

(d) The Pacific Northwest Forest Case Study request is $100,000. The Northwest Forest Plan (NFP) is an interagency program, initiated by the White House's Council of Environmental Quality, for ecosystem management of watersheds within the public lands in the Pacific Northwest within the range of the Northern Spotted Owl (24,000,000 acres). In FY 1999, the Corps of Engineers became an official signatory agency to the NFP Memorandum of Understanding. The NFP institutes an interagency approach for restoring and protecting animal and plant species on public lands and provides for economic assistance to impacted communities. With the funds requested, Portland District will participate in NFP activities as an external representative on a part-time basis. NFP participants are presently concentrating on resolving issues of the Aquatic Conservation Strategy and revisions to the NFP interagency MOU while continuing to refine and implement its watershed-scale ecosystem management strategies. Many of these strategies and programs involve, and will benefit from, the Corps authorized missions throughout the western states. The NFP presents the best outreach opportunity for the Corps to expand its involvement with the other agencies of the Federal and State communities to use all of our engineering and environmental capabilities to address many of government's missions.

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (continued)

(e) The Interagency Water Resources Development request is $1,100,000. This amount provides $900,000 for Corps of Engineers district activities, not otherwise funded, that require coordination effort with non-Federal interests. These activities include items such as meeting with City, County and State officials to help them solve water resources problems when they have sought advice or to determine whether Corps programs are available and may be used to address the problems. This will also cover costs of meeting with potential study sponsors before studies are budgeted to insure they understand study cost sharing and to obtain an indication of their interest in participating in a future study. It also provides $200,000 for two American Heritage River Navigators who are supported by the US Army Corps of Engineers, based upon Executive Order 13061, dated 11 September 1997. These River Navigators provide direct support to the Community Partners for the New River, which flows through NC, VA and WV; and for the Upper Mississippi River above St. Louis, MO. The navigators assist the individual communities and community partners in accessing a variety of Federal programs to achieve the goals in the river workplans. These workplans are a product of river community partners' locally driven, watershed management approaches. Goals include economic revitalization, environmental restoration, and historic and cultural preservation. Immediate targets in the communities' river workplans include improvements such as land cleanup, alternative agriculture and aquaculture projects, community revitalization, educational outreach, stormwater runoff, downtown and riverfront improvements and preservation of historic features in river communities. The River Navigators provide a conduit and coordination link between the community partners and the various Federal programs that might apply to, and provide funding sources for the individual community projects.

(f) The Interagency and International Support request is $150,000 to allow the Corps of Engineers to participate with other Federal agencies and international organizations to address problems of national significance to the United States. The Corps of Engineers has widely recognized expertise and experience in water resources, infrastructure planning and development, and environmental protection and restoration. Frequently, other Federal agencies, particularly the State Department and the Environmental Protection Agency, and international organizations request use of the Corps talents in addressing domestic or international problems of utmost importance to the United States. Often the requesting entity is not able to reimburse all Corps costs, including salaries, but yet the success of the program can be greatly enhanced by employing the talents of the Corps. In many cases the Corps abilities to perform its civil works mission or promote opportunities in the U.S. private sector are also enhanced. In FY 2002, the program funds are being used to support the State Department on Middle East and other global water issues, the World Water Council, the Federal Emergency Management Agency, the Environmental Protection Agency on Brownfields, and other initiatives of national importance. The requested funds will be used to cover Corps salary and travel costs not otherwise available. International activities will be undertaken only after consultation with the State Department.

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (continued)

(g) The Inventory of Dams request is $300,000. These funds will be used for continued maintenance and publication of the National Dam Inventory. Section 215 of the Water Resources Development Act of 1996 (Public Law 104-303) authorized $500,000 to be appropriated each fiscal year for the maintenance and publication of the National Dam Inventory. This authorization was continued in the Dam Safety and Security Act of 2002 (Public Law 107-310). This funding level will provide only the absolute minimum maintenance on the Inventory and will not permit the level of maintenance required to assure a complete inventory of dam security. The Inventory was initially compiled in 1975 has been periodically updated to reflect construction of new dams, ownership changes, major modifications to existing dams, decommissioning and removal of dams, and improvements in the accuracy and completeness of the data. The current update includes over 78,000 dams, and focuses on current technology, integrating computer software into the inventory package to improve the ease of use, accuracy, and accessibility of the data. These funds will be used to implement improved information flow and data quality control processes, to greatly enhance the state of knowledge management for dam safety. The inventory will continue to be improved utilizing rapidly evolving technology including enhanced World Wide Web access, a Geographic Information System (GIS) interface, and integration with other dam safety resources. The importance of continued maintenance and publication of the National Dam Inventory has increased. The inventory is now required for use by the Secretary of Homeland Defense and the National Dam Safety Review Board in the allocation of dam safety program assistance funds to the various States in proportion to the number of dams in the state. Inventory data is also included in the biennial report to Congress on the National Dam Safety Program. The Inventory also plays an important role in the identification of infrastructure in risk due to terrorist activities. Additional efforts are also required to ensure data security in response to Homeland Defense activities. The ongoing maintenance and publishing of the Inventory is a coordinated effort involving data from the Federal and non-federal Dam Safety community in cooperation with the Interagency Committee on Dam Safety (ICODS) and the Association of State Dam Safety Officials (ASDSO).

(h) The National Estuary Program request is $100,000. These funds will be used to participate with Federal and State agencies in the National Estuary Program (NEP) administered by the Environmental Protection Agency under the Water Quality Act of 1987 (Section 320 of PL 100-4). The NEP is an interagency planning program to develop management plans for nationally significant estuaries designated by the EPA. To date, the following 28 estuaries have been designated under the program: Puget Sound, WA; Delaware Estuary, DE, NJ & PA; and Delaware Inland Bays, DE; New York/New Jersey Harbor, NY-NJ; Sarasota Bay, FL; Santa Monica Bay, CA; San Francisco Bay, CA; Galveston Bay, TX; Albermarle/Pamlico Sound, NC; Buzzards Bay, MA; Narrangansett Bay, RI; and Long Island Sound, CT-NY, NY; Massachusetts Bay, MA; Barataria/Terrebonne Bays, LA; Indian River Lagoon, FL; Casco Bay, ME; Tampa Bay, Fl; San Juan Bay, PR; Corpus Christi Bay, TX; Tillamook Bay, OR; Peconic Bay, NY, Barnegat Bay, NJ; Charlotte Harbor, FL; Lower Columbia River Estuary, OR & WA; Maryland Coastal Bays, MD; Mobile Bay, AL; Morro Bay, CA; and New Hampshire Estuaries, NH. Because of extensive Corps involvement with Federal water resources projects in the nation's estuaries and other responsibilities in waters of the U.S., the Corps has been asked to participate on the management and technical advisory committees of those NEP estuaries being studied. The requested funds would be used to cover costs of Corps field office meeting attendance, field reconnaissance, and data transfer. Because of similar objectives, these funds could be used for similar coordination activities conducted under the Coast America initiative.

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (continued)

(i) The North American Waterfowl Management (NAWMP) request is $100,000. These funds will be used to continue cooperation with Federal and State agencies, and non-Federal interests in support of the NAWMP administered by the Department of the Interior, Fish and Wildlife Service. The NAWMP is an international program designed to reverse downward trends in North America's waterfowl populations by protecting and improving waterfowl habitats nationwide, particularly in 34 areas within the United States identified as being critical to meeting NAWMP goals and objectives. Department of the Army support to the NAWMP is set forth in an agreement signed with the Department of the Interior on January 23, 1989. The Corps of Engineers has broad water resources development responsibilities and authorities and has stewardship responsibilities for over seven million acres of water and land. Many Corps of Engineers projects contribute directly or indirectly to the habitat base for the nation's waterfowl, and other wetland species. Current and future Corps of Engineer projects are expected to play an even greater role, particularly during years of low rainfall. Also, the Corps of Engineers has recognized extensive environmental engineering and technical expertise and experience that can contribute greatly toward meeting the NAWMP waterfowl habitat improvement goals and objectives. The requested funds would be used to cover costs of Corps of Engineers field office participation in the field trips, interagency coordination meetings, and information transfer in response to conditions set forth in the agreement between the Department of the Interior and the Department of the Army. Because of similar objectives, these funds could also be used for similar coordination activities conducted under the Coastal America initiative.

j) The Estuary Habitat Restoration Program request is $100,000. These funds will be used to support the interagency council established in the Estuary Restoration Act of 2000. This act establishes an estuary habitat restoration program under which the Secretary of the Army may carry out estuary habitat restoration projects. It also establishes an interagency Council responsible for developing and updating a national strategy for restoration of estuary habitat and soliciting, reviewing, and evaluating project proposals and submitting a list of recommended projects to the Secretary for implementation. The requested funds would be used to aid in the implementation of the national strategy and other activities necessary to support the Council. Among the specific activities might be data collection and evaluation, and hosting interagency meetings and cosponsoring regional workshops.

1. Surveys

e. Coordination with Other Federal Agencies, States, and Non-Federal Interests

(2) Other Coordination Programs (continued)

(k) The Coordination With Other Water Resources Agencies request is $300,000. Cooperation with the Department of Agriculture (USDA) is under the Watershed Protection and Flood Prevention Act of 1954 (Section 5 of PL 566-83), as amended; the Flood Control Act of December 22, 1944 (Section 1 of PL 534-78), as amended; and the National Environmental Policy Act of 1969 (PL 91-190). Executive Order No. 10913, dated 18 January 1961, requires that cognizance be taken of constructed and contemplated upstream and downstream USDA works, and that plans be submitted to the Secretary of the Army for review and comment prior to their transmission to the Congress through the President. As the agency responsible for the flood control features of basin program, the Corps of Engineers must provide the Department of Agriculture with information on proposed Corps projects, including their effect on contemplated watershed programs. The Corps is also required by Section 102 (2)(c) of the National Environmental Policy Act of 1969 to review the environmental impacts that would result from installation of USDA project features. Cooperation with the Bureau of Reclamation of the Department of the Interior includes preparation of estimates of flood control requirements, and benefits, and reservoir operating criteria for storage reservoirs to be constructed with Federal funds, in accordance with Sections 1 and 7 of PL 534-78 and Section 7 of PL 984-84, as amended. Studies made by the Bureau of Reclamation of the flood control features of proposed reclamation projects are submitted to the Corps of Engineers for review and determination of the flood control benefits. The Corps of Engineers uses the data collected by the Bureau but makes an independent evaluation of the project. The report of the Chief of Engineers is used by the Secretary of the Interior in making allocation of project cost to flood control. Corps representation is required for cooperation with Federal and state agencies such as River Basin Compact Commissions; Interstate River Basin Compacts; and Regional Planning Commissions in authorized, but unfunded investigations.

(l) The CALFED request is $100,000, which will be used to continue the coordination efforts in the CALFED Bay Delta process. The CALFED Bay-Delta Program is a three-phased solution process for the development of a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. Phase I, the identification of the range of alternatives, was completed in fall 1996. Phase II was completed 28 Aug 00 with the signing of the Record of Decision defining the programmatic plan. Phase III initiated Sep 00 and is a 7 to 30 year process. As outlined in the ROD, the Corps with the State of California are co-managers of the CALFED Phase III program element, Levee System Integrity, and will provide specific technical and implementation support.

(m) The Lake Tahoe request is $100,000. This funding is required to continue work associated with Lake Tahoe Federal Interagency Partnership. The Corps is a founding member of this partnership established to insure cooperation, support and synergy among Federal department and agencies having principle management or jurisdictional authorities in the Lake Tahoe Basin. Partnership action work toward the preservation of the natural, recreational, ecological and economic resources in the Lake Tahoe Region. Activities will include working with the Tahoe Regional Planning Agency to develop opportunities for restoration in the Lake Tahoe Basin and working with local and state agencies, public advisory committees, and staff work to support District, Division and HQ executive level involvement.

2. Collection and Study of Basic Data

a. Flood Plain Management Services

SCOPE: This Corps of Engineers program stems from Section 206 of the 1960 Flood Control Act (PL 86-645), as amended, which authorizes the Secretary of the Army to compile and disseminate data on floods and flood damage potential and to provide guidance in their use in flood-related planning to State and local agencies. This information and guidance supports planning and implementing actions which reduce the flood hazard through wise use of flood plains. The Flood Plain Management Services Program provides flood hazard information, interpretation, and guidance for sites or short reaches of stream or coast and technical and planning assistance to states, communities and Indian Tribes; develops and disseminates guides and pamphlets to convey the nature of flood hazards and to foster public understanding of the options for dealing with flood hazards; and participates with the Federal Emergency Management Agency and local governments in the conduct of pre-disaster hurricane evacuation and preparedness studies for mobilizing local community responsiveness to natural disasters in high-hazard coastal areas.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-08) Program Cost	$50,000,000
Allocation Requested for FY 2004	7,500,000
Balance to Complete Five-Year Program after FY 2004	42,500,000
Allocation For FY 2003	TBD
Change in FY 2003 from FY 2032	TBD
Average Annual Allocation for FY 1999-03	TBD

JUSTIFICATION: The funds requested for FY 2004 are to address the growing number of requests from states, regional and local governments, Indian Tribes, and other non-Federal public agencies. An increase in funds allocation will enable states and local communities to become more involved in the application of flood plain management measures. It will provide them site-specific flood and flood plain data and assistance; assist with efforts to identify flood hazards in smaller communities under growth pressures; facilitate special studies that concentrate on the prevention of future flood damages, giving increased emphasis to the application of non-structural measures; and enable critical pre-disaster hurricane evacuation and preparedness studies for states and counties along the Atlantic and Pacific Oceans, the Gulf of Mexico, and US islands in the Caribbean and Pacific.

ACCOMPLISHMENTS: Responses to requests from Federal and non-Federal agencies, communities, Indian Tribes and individuals for flood-related information, interpretation, and guidance continue to number into the tens of thousands and involve property valued at billions of dollars. The Corps participated in pre-disaster hurricane evacuation and preparedness studies for high-hazard areas in Louisiana, Massachusetts, Florida, Connecticut, North Carolina, South Carolina, New York, Puerto Rico, New Hampshire, Delaware, Maryland, Virginia, Georgia, Alabama, Mississippi, Hawaii, Guam, Samoa, and the Commonwealth of the Northern Mariana Islands; provided support for updating and improving mathematical models of flood plain hydrology and hydraulics; developed training programs in flood plain hydrology and hydraulics; and prepared flood-proofing studies.

2. Collection and Study of Basic Data

c. Other programs

(1) Stream Gaging (U.S. Geological Survey)

SCOPE: The Corps of Engineers cooperates with the U.S. Geological Survey in this effort, and contributes funds for all or part of the cost of the operation and maintenance of about 2,520 stations that are of special importance to the Corps mission. The Corps established this continuing, cooperative program in March 1928, so that streamflow data would be available to meet special needs concerning the Corps water resources responsibilities.

SUMMARIZED FINANCIAL DATA:

Estimated Five-year (FY 2004-2008) Program Cost	$4,800,000
Allocation Requested for FY 2004	500,000
Balance to Complete Five-year Program after FY 2004	$4,300,000
Allocation for FY 2003	TBD
Change in FY 2003 from FY 2003	TBD
Average Annual Allocation for FY 1999-2004	TBD

JUSTIFICATION: The Corps of Engineers makes extensive use of streamflow records in the planning, design, construction, and operation of water resources projects. The Basic network of stream gaging stations operated by the Geological Survey under its normal functions without support from the Corps is inadequate to meet all the special needs of the Corps water resource development responsibilities. Accordingly, a cooperative program was established under which funds are transferred to the Survey to cover, partially, the cost of operating specific stations. In the optimum development and management of water resources, it is essential that continuous records of streamflow be maintained at specific sites over a long period of years to provide a reliable measure of water resources available for various uses. This budget item covers only the non-project portion of the cooperative program. To continue the operation of stations of special interest to the Corps, an estimated total of $17,100,000 will be required by the U.S. Geological Survey during FY 2004, exclusive of funds received from other cooperative sources. The operation and maintenance cost of these stations will be financed from three sources, as follows: (1) $560,000 appropriated directly to the U.S. Geological Survey for special Corps stations; (2) $500,000 from this budget item for stations not directly attributed to the Corps projects; and (3) $16,040,000 from Corps funds budgeted elsewhere for authorized projects and studies. The basic program will remain at the same level as in previous years.

ACCOMPLISHMENTS: Records for the streamflow stations supported by transfer of funds are used primarily to operate Federal flood reduction projects. In the past ten years these projects have reduced flood damages by an average of $22.8 billion annually. Not only are these gages used by the Corps, but 100 percent of the data are used by the National Weather Service as the basis for its public flood forecasts. In addition, the data are published on the Internet by the Corps and/or in a regular series of reports by the U.S. Geological Survey and provide valuable information for many Federal and state agencies and the public.

COORDINATION: This program is fully coordinated with the U.S. Geological Survey. Costs for conducting the work are compiled by representatives of the Survey to identify a basis for the transfer of funds to that agency.

2. Collection and Study of Basic Data

c. Other Programs

(2) Precipitation Studies (National Weather Service)

SCOPE:

This is the Hydrometeorological Studies Program conducted for the Corps of Engineers by the National Weather Service (NWS). The NWS performs analyses of storm rainfall and other meteorological data required to develop hydrologic criteria for use by the Corps in planning, design and water control management of flood control and water resources development projects, and in floodplain management studies. The Corps transfers funds to the NWS to pay for the work.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY2004-2008) Program Cost	$ 2,500,000
Allocation Requested for FY 2004	300,000
Balance to Complete Five-Year Program after FY 2004	2,200,000
Allocation for FY2003	TBD
Change in FY 2003 from FY2032	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:

The scientific services provided by the National Weather Service under this program consist of: (1) review of the meteorological aspects of storm data compiled under the Hydrologic Studies Program conducted by the Corps; (2) development of probable maximum precipitation (PMP) estimates and occurrence probability of storms for large regions and for specific river basins; (3) precipitation depth-duration-frequency estimates for regions and the nation; (4) development of meteorological parameters pertaining to hurricanes, northeasters and other wind phenomena; and (5) other studies necessary to accomplish the Corps mission. Funds in the amount of $300,000 will be required in FY 2004 to continue the program at a level consistent with Corps needs. The entire cost of the Corps hydrometeorological studies program is funded under this budget item.

2. Collection and Study of Basic Data

c. Other Programs

(2) Precipitation Studies (National Weather Service) (Continued)

~~ACCOMPLISHMENTS FY 2003~~:

A study of precipitation frequency for the semi-arid southwestern U.S., which began in FY 1991, was completed and published as the first volume of NOAA Atlas 14. This is a major accomplishment and sets the standard for similar studies of the rest of the U.S. Work on the precipitation-frequency study of Ohio River basin and surrounding states, and for Puerto Rico and the Virgin islands was completed and published. Work on the precipitation-frequency study for the Hawaiian Islands resumed after several years of postponement and delay. NWS continued support of the State of Colorado's independent PMP analysis for the Corps reservoir on Cherry Creek by reviewing and providing comments on the state's contractor's deliverables.

~~FISCAL YEAR 2004~~:

The major efforts in FY 2004 will be to continue work on revision of the Precipitation-Frequency Atlas for the United States (NOAA Atlas 14), with emphasis given to: (a) completing the study of the Hawaiian Islands; (b) initiating updates for the remaining states. NWS will maintain the capability to do site specific work for PMP analyses for Corps projects throughout the United States.

~~COORDINATION~~:

This program is fully coordinated with the National Weather Service, Office of Hydrologic Development. For the precipitation-frequency study of the Ohio River basin region, the Corps assisted the NWS obtain significant cost-sharing from the states in the region and will attempt to obtain cost sharing from the states and other federal agencies for the remaining states.

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies

SCOPE:

The Boundary Waters Treaty of 1909, the Niagara River Treaty of 1950, the Columbia River Treaty of 1961, and other less formal agreements between the Governments of the United States and Canada are concerned with the regulation, control, and use of boundary waters. Under the Boundary Waters Treaty of 1909, the International Joint Commission (IJC) was established and empowered to establish local boards, which conduct investigations and assure adherence to orders of approval pertaining to use of boundary waters issued by the Commission. Corps of Engineers representatives serve on and chair the U.S. Sections of the following IJC Boards: Saint Croix River, Champlain-Richelieu, Lake Champlain, St. Lawrence River, Niagara, Lake Superior, Lake of the Woods, Rainy Lake, Souris-Red Rivers Engineering, Souris River Control, Kootenay Lake, and Osoyoos Lake. Under separate treaties, Corps representatives serve on and chair the U.S. Sections of the Columbia River Treaty Permanent Engineering Board, the Columbia River Treaty Entities, the International Niagara Committee, and the International Lake Memphremagog Board. These Boards and Committees hold joint meetings, review report drafts and correspondence, make field inspections, obtain, collect, and analyze hydrologic and hydraulic data, and report their findings to the establishing parties. The degree of study activity varies depending upon the requirements of the Commission or Treaty under which they were established. These efforts assure better control, use, and orderly development of the jointly controlled water resources, and are of importance in attempting to meet water demands resulting from an expanding economy along the United States-Canadian border. Studies are closely related to the Corps of Engineers' Civil Works program and are summarized in the Assistant Secretary of the Army for Civil Works' Annual Report.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-08) Program Cost	$2,500,000
Allocation Requested for FY 2004	400,000
Balance to Complete Five-Year Program after FY 2004	2,100,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:

The amount requested for FY 2004 will fund Corps of Engineers participation in assisting the U.S. Government meet its obligations under provisions of boundary water treaties and other international agreements between the United States and Canada. CELRD provides support for implementation of the Niagara Treaty of 1950 that governs the split of Niagara River Waters between the U. S. and Canada, and between the uses of the waters.

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies (continued)

Northwestern Division engages in activities associated with implementation of the Columbia River Treaty and the Kootenay Lake and Osoyoos Lake Boards of Control. CENWD, together with Bonneville Power Administration and British Columbia Hydro annually develop the Assured Operating Plan and the Detailed Operating Plan for the treaty storage projects. Funds also are used to support the work of the Columbia River Treaty Permanent Engineering Board, including publication of its annual report to the Governments. North Atlantic Division is engaged in support of the Saint Croix River Board of Control and the Gulf of Maine Council on the Marine Environment. Work in the Saint Croix R. Basin involves retrieval and analysis of water data to assure compliance with IJC rules and annual inspection of dams and fish passage facilities.

~~ACCOMPLISHMENTS:~~

The Corps Division and District commanders and their staffs met all of their many and diverse responsibilities in representing the United States on the previously listed IJC Boards of Control and Treaty entities, boards and committees. The IJC-sponsored special flood damage reduction study of the Red River Basin was closed without completing the full scope of the planned work because of lack of funds from the United States. CENWD completed the Libby Coordination Agreement, and implemented all Columbia River Treaty required Assured Operating Plans (AOP) and Determinations of Downstream Power Benefits (DDPB).

~~FISCAL YEAR 2004:~~

The Corps will continue to carry out its multiple responsibilities to the various IJC Boards of Control and to the several Treaty entities, boards and committees. During FY 2004, additional flow data will be obtained and used to update the rating curve used to verify compliance with Niagara Treaty requirements. In addition, pursuant to the October 1999 Plan of Study for Lake Ontario regulation improvements, the IJC established the Lake Ontario-St. Lawrence River Study Board. Investigations are continuing as the fourth year of a 5-year effort. A Plan of Study for evaluating the Lake Superior regulation criteria outflows is being developed for approval by Governments. A basin-wide hydrologic and regulation model will be implemented. Special studies related to international impacts of evaluation of endangered species compliance related to Columbia River Treaty projects will be continued by CENWD. CENAD will continue normal work in support of the Saint Croix Board of Control and the Gulf of Maine Council on the Marine Environment. Discussions are ongoing with the IJC on expansion of the IJC's mission to include environmental objectives, as described in the report entitled "The IJC and the 21st Century". The Corps will be supporting the IJC as it executes the reference from the governments regarding investigating the feasibility of establishing a demonstration watershed board and its implementation of the reference on diversion, consumption and transfer of international waters.

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies

SCOPE: The scope of activities under this item is determined annually based on the requests from USACE Commands and Laboratories to meet high-priority needs. These items are not covered under regular Civil Works GI and O&M funding programs. Major activities to be undertaken in the program generally include the collection of basic hydrologic data and the studies of these data for major storm events or certain special hydrologic processes. The information to be derived from this program will improve hydrologic engineering techniques for the planning, design, construction, and operation of water resources projects. The program consists of four sub-items: Storm Studies, General Hydrologic Studies, Sedimentation Studies, and Stream Flow and Rainfall Data.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-2008) Program Cost	$ 3,800,000
Allocation Requested for FY 2004	400,000
Balance to Complete Five-Year Program after FY 2004	3,400,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:

1. Storm Studies: The Storm Studies Program is a continuing investigation of major storms for the purpose of accumulating comprehensive rainfall data. These data are used to refine the regional hydrometeorological information throughout the nation. The up-to-date hydrometeorological information is essential for design of new projects as well as for safety assessment of existing projects. We have substantial need for hydrologic data for initiation and completion of water resources studies. These data are required in the evaluation of flood-producing potentials of river basins, and constitute the major portion of the basic data used in probable maximum precipitation determinations. Funds in the amount of $135,000 will be required in FY 2004 to work on several storm studies. Study of the storm occurred in November 2001 over the Big Island of Hawaii will be initiated. Studies of storms occurred in July 1991 west of St. Louis County, River des Teres, MO; July 1990 at eastern NE and western IA; June 1991 at Elkhorn River Basin, NE and storm study of the Jan 1982 event in San Francisco Bay area will be continued. During 1997, wide-spread flooding occurred across the nation. Therefore storm studies are also planned for the 1997 events occurred over the San Joaquin, CA and the Red River of the North (SD & ND) basins.

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (continued)

2. General Hydrologic Studies: Studies under this sub-item include needed improvement in the analysis of rainfall-runoff relationships, flood frequency, snowmelt studies, hydrograph development and routing at selected watersheds, model calibrations in urban areas, analyses of past floods, methods for the hydraulic analysis of non-gaged streams, and other studies of related hydrologic nature. Studies of new techniques to improve the accuracy of hydrologic modeling require additional resources. New radar applications in rainfall-runoff forecast is an immediate concern. Funds in the amount of $135,000 in FY 2004 will be required to continue this sub-item at a level to insure proper and orderly progress. In New England region, a continuing comprehensive hydrologic analysis of 1987 flood event will provide resource data for future potential planning and design studies, as well as reservoir operation. An effort which began in FY 1985 on re-examination of water yield and potential reallocation of storage space in Corps reservoirs is continuing. A study on rainfall induced by Hurricane Floyd during September 1999 over the Neuse and Tar basins in North Carolina began in FY 2003.

3. Sedimentation Studies: The program is a continuing effort in which funds are used for conducting non-project sedimentation studies, and for the Corps share of an interagency sediment investigation program. The sedimentation studies include: promoting and supporting the standardization and development of equipment, criteria and methodology for the collection, analysis of suspended and bedload sediment characteristics of natural streams; and laboratory studies. The Hydraulics Laboratory, Waterways Experiment Station is sponsored by the Federal Interagency Sedimentation Committee (members from 18 agencies) and constitutes the major work effort under this sub-item. Funds in the amount of $70,000 in FY 2004 will be required to support the Federal Interagency Sedimentation Project (FSIP) located at the Waterways Experiment Station.

4. Streamflow and Rainfall Data: This is a continuing program in which funds are used for installation and operation of hydrometeorology gages of non-project nature that are needed by the Corps in addition to the stations in the cooperative programs conducted by the U.S. Geological Survey and the National Weather Service for the Corps. Funds are needed to continue support for the basic data collection in the Sleepers River Watershed in Vermont. Additionally, gages are needed to observe historical high water marks for validation of hydrologic models. An amount of $60,000 in FY 2004 is required to continue the establishment and operation of these special-purpose gages, and to determine historical flooding in urban sites.

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (continued)

~~ACCOMPLISHMENTS:~~

1. ~~Storm Studies:~~ This continuing program was organized in 1939 for the purpose of investigating rainfall from major storms of record throughout the entire United States. The selected storms are analyzed for frequency, associated runoff and precipitation data. These efforts are coordinated with the National Weather Services (NWS) Hydrometeorological Branch and the resulting data from these studies are used in design of water resources project throughout the country. During the period, Corps offices have gathered data on other major storms, reviewed the scope and interim results of ongoing studies by NWS on development of standard project and probable maximum storms at various basins throughout the United States and territories. Storm studies are being utilized in probable maximum precipitation studies in coordination with NWS for northwest, California and southwest United States.

2. ~~General Hydrologic Studies:~~ Examples of some of the more important studies accomplished under this program are: determination of rainfall-runoff relationship in urban areas; general hydraulic model calibration; snow cover surveys; and adaptation of hydrologic programs to CADD equipment. Work continued on the regional frequency studies for three major river basins in the North Central States. The long-term foothill streams of Colorado flash flooding project progressed as scheduled. Particularly encouraging to date are the data developed for rainfall-runoff on small watersheds and evaluation of flood potential in connection with design of structure located in the flood basin. Works continue on the water yield study.

3. ~~Sedimentation Studies:~~ All of the funds allotted to this sub-item is to assist in financing the Corps share of the cooperative Interagency Sedimentation Project at the Hydraulics Laboratory, Waterways Experiment Station.

4. ~~Streamflow and Rainfall Data:~~ Stations funded under this sub-item are generally established and operated several years prior to anticipated authorization for project-type activities, in order to provide a background of observed data on which to base the planning and design of projects. Progress continues at these gage sites to collect hydrometeorological data in flood prone areas to document historical flood and calibration of hydrologic models.

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (Continued)

~~FISCAL YEAR 2004:~~ The appropriation requested for FY 2004 is required to continue the Hydrologic Studies Program at the level required to meet high-priority needs.

~~ITEMS~~	~~FY 2003~~	~~FY2004~~	
1. ~~Storm Studies~~	TBD	$ 135,000	
2. ~~General Hydrologic Studies~~	TBD	135,000	
3. ~~Sedimentation Studies~~	TBD	70,000	
4. ~~Streamflow and Rainfall Data~~	TBD	~~60,000~~	
	TOTAL	TBD	400,000

~~COORDINATION:~~ The storm studies are prepared by USACE commands and are reviewed by the National Weather Services in the preparation of probable maximum precipitation estimates for the Corps. The Interagency Sedimentation Project is conducted cooperatively, and jointly funded, by eight Federal agencies. Information concerning streamflow and rainfall data collection by the Corps under this activity is made available to the U.S. Geological Survey and the National Weather Service.

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers

SCOPE:

Five information analysis centers (coastal engineering, cold regions engineering, concrete technology, hydraulic engineering, and soil mechanics) located at the U. S. Army Engineer Research and Development Center provide the major interface between the Corps of Engineers and the public and private sectors to gather and disseminate information as required by PL 99-802, Federal Technology Transfer Act of 1986. The function of each center is to acquire, examine, evaluate, summarize, and disseminate newly published scientific and technical information generated within the Corp of Engineers and other activities in the U.S. and abroad.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-2008) Program Cost	$ 600,000
Allocation Requested for FY 2004	100,000
Balance to Complete Five-Year Program After FY 2004	500,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD

JUSTIFICATION:

Public Law 99-802, Federal Technology Transfer Act of 1986, requires technology transfer from Federal agencies to the private sector. In addition, both the Department of Defense and the Department of the Army have objectives of supporting the information needs of engineers and scientists and eliminating unnecessary duplication of R&D. The specified information centers, supported by their host laboratories, critically evaluate and summarize the technical validity and merits of published and unpublished research and technical publications on design, construction, or other technology utilization. User communities have been well established and distribution lists for technology transfer are continuously updated. Electronic media including the World Wide Web are used where appropriate. The effectiveness of activities and services is evaluated on a continuing basis, and technology transfer products and methodology are revised when appropriate.

~~ACTIVITY IN FY 2004:~~

The Corps of Engineers has moved onto the information highway and is making major use of the World Wide Web (WWW) for technology transfer. The WWW is widely accessible by both the public and private sectors and provides rapid transfer, at significant cost savings, of technical data, bulletins, general information on ongoing studies, technical notes, and ultimately technical reports. The information centers and their host laboratories are now maintaining WWW homepages with links to other related homepages. Recent establishment of internal networks, as well as a Corps-wide network, along with connection to the Internet, have provided a major leap forward in communications at a significant reduction in transmittal costs. Several thousand technical inquiries are received annually, with the Internet playing an increasingly major role. Inquiries are received from Federal, state, and local government activities, universities, private sector engineers and scientists, and concerned citizens.

~~Technical Field~~	~~Subjects~~
Coastal Engineering	Wave data and predictions, shore processes, inlet dynamics, navigation channels and structures, harbors, and coastal construction
Cold Regions Engineering	Ice engineering, meteorology, climatology, geophysics, geology, remote sensing, environmental engineering
Concrete Technology	Cements, concrete, aggregates, concrete construction, concrete repair and rehabilitation technology
Hydraulic Engineering	Hydraulic, hydrologic, water resources, and sedimentation of streams, rivers, waterways, reservoirs and natural impoundments; estuaries, inland and coastal groundwater; fishery systems; and hydraulic structures of all types
Soil Mechanics	Embankment and foundation engineering, earthquake engineering, engineering geology, and rock mechanics

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers (Continued)

Information Analysis Centers	FY 2004
Coastal Engineering	$ 20,000
Cold Regions Engineering	20,000
Concrete Technology	20,000
Hydraulic Engineering	20,000
Soil Mechanics	20,000
	$100,000

COORDINATION:

The Information Analysis Centers and their host Laboratories distribute reports, technical notes, computer programs, GIS data, abstracts, information bulletins, and other scientific and technical information to the Defense Technical Information Center (DTIC), Corps libraries, depository libraries, and identified user communities to ensure wide circulation and availability. WWW homepages are maintained on the Internet for public accessibility. Reports are also available for searching through the Corps Library Program's computer system LS/2000. DTIC publicizes reports through its own DOD database and forwards the reports to the National Technical Information Service (NTIS), Department of Commerce. NTIS places reports into a compendia of Selected Water Resources Abstracts and an annual cumulative edition, with conveniently indexed and cross referenced identification of what is being or has been done in water resources research and related scientific and engineering fields by whom, where, and when.

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection

SCOPE:

The nationwide program is designed to systematically measure, analyze and assemble information required to accomplish the Corps mission in coastal navigation, storm damage reduction, and evaluation of harbor entrance impacts on adjacent shores. The data directly support project comprehensive regional and local planning, research, design, construction, operation, and maintenance. Cost-effective mission accomplishment requires long-term and systems/regional data that encompasses winds, waves, currents, water levels, and bottom configuration, sediment characteristics, and geomorphologic data. In particular, wave data are the key design parameter for coastal projects. For example, a 20% error in wave height leads to over a 70% difference in stone size for navigation structures. If the error in wave height leads to over specifying stone size, the construction costs are much higher than necessary. If stone size is too small, structures fail or have unnecessary life-cycle repair costs. With 800 navigation projects to maintain and repair (25% are more than 50-years old), cost attributable to having no data or poor data would be significant. These data are either unavailable in existing archives, are of uncertain or poor quality, or are too sparsely distributed temporally and/or spatially to have statistical value. The required data are regional in nature and not properly chargeable to authorized projects. Sufficient time is not available prior to or during project preauthorization planning studies to accumulate the years of base-line data necessary for adequate assessment of technical, economic, and environmental feasibility. Acquisition of the information will be accomplished through the concurrent accumulation of complementary items, each of which is unique and contributes certain critically needed data. The program is organized into five sub-items: (1) Wave Information Studies; (2) Wave Gauging; (3) Topographic and Bathymetric Nearshore Data; (4) Field Research Facility Measurements; and (5) Information and Program Management.

SUMMARIZED FINANCIAL DATA:

Estimated Five Year (FY 2004-2008) Program Cost	$14,000,000
Allocation Requested for FY 2004	2,500,000
Balance to Complete Five-Year Program after FY 2004	11,500,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (continued)

~~JUSTIFICATION~~:

1. ~~Wave Information Studies~~. Numerical simulation techniques are used to estimate wave environments, including direction, from weather information in areas where adequate data are not available. Most wave gage data are non-directional; hindcast data provides 30-40 years directional wave statistics. This information is paramount to the functional/structural design and economic evaluation of coastal navigation projects. Additionally, detailed wind information is produced. These data are made available to Corps of Engineers Districts (in addition to reports) through a computerized coastal engineering data retrieval system, from which most statistical representations desired of waves and water levels can be obtained. Funding required is $390,000.

2. ~~Wave Gauging~~. High-quality wave data are needed to predict harbor shoaling, harbor oscillation, jetty stabilization, etc. These data are imperative for operational guidance of dredging, navigation, maintenance, etc. Upon acquisition, these data are analyzed and made available to Corps engineers, planners, and managers via the Internet. These efforts are coordinated with the National Oceanic and Atmospheric Administration (NOAA), the Federal Emergency Management Administration (FEMA), and the data are made available to NOAA and the public. Cooperative agreements for the collection of wave data have been executed with the states of California, Alaska, Florida, Hawaii, Washington, Texas, and Virginia. These agreements provide a mechanism for other Federal, state, and local agencies to cooperate in the collection of coastal data. Funds in the amount of $1,000,000 will be needed to continue cooperative wave gauging with States and to operate and maintain wave gauging networks on a limited portion of the U.S. coasts.

3. ~~Topographic and Bathymetric Nearshore Data.~~ A historical record of past episodic events provides the necessary basis for predicting the results of future occurrences. The objective of this effort is to provide the quantity and quality of timely data required to more accurately document characteristics and effects of episodic coastal events such as extratropical storms, hurricanes, tsunamis, etc. Measurements of storm-induced beach, dune, and nearshore bottom changes are necessary to quantify erosion and storm effects on navigation projects. Storm shoaled channels will limit vessel access and changed bathymetry will change the wave climate at the entrance channel affecting the extent of pitch, roll, and heave a ship will experience. Nearshore berm disposal areas are also significantly affected by large episodic storm events. Funds in the amount of $100,000 are needed to support data collection in this area.

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (continued)

4. ~~Field Research Facility Measurements.~~ Critical to measuring, analyzing and providing useful coastal data products for the CE Districts is the collection of intensive, long-term, high-resolution data for improving project design and reducing costs. The Field Research Facility at Duck, North Carolina is a unique real-world experimental facility that incorporates high-resolution instruments with comprehensive suites of environmental sensors to provide wave, current, meteorological, bathymetric, and topographic data. The facility is used to evaluate wave measurement techniques and equipment, test experimental oceanographic instrumentation and sensors, collect high-resolution continual data throughout major storms, conduct large interagency field experiments, such as SandyDuck and Duck94, and collect spatially and temporally intensive long-term base measurements required to understand complex coastal processes. These data are made available via an interactive website to engineers and scientists in the Corps, DOD Laboratories, other agencies, universities, and the private sector for researching coastal processes and for developing and verifying numerical models and coastal engineering tools that predict wave environments and sediment movement affecting coastal projects, navigation safety, dredging quantities and project impacts. They also are crucial for evaluating the characteristic of data products produced by sub-items (1) - (3) and improving their quality and completeness. Funds in the amount of $1,000,000 are required for the base measurement program at the Field Research Facility.

5. ~~Information and Program Management~~. This task objective is to make coastal data readily available to Corps Districts and Divisions. A standardized database has been developed so that coastal data formats and analysis procedures are compatible throughout the Corps of Engineers. The value of program data and project-related data is maximized through the use of Corps-wide standards, routine updating of available data, utilization of a centralized data library on the World Wide Web and dissemination over the Internet. Principal forms of output are information reports, data resource reports, and computer-based data files. The standardized procedures will help avoid intra-agency duplication, minimize data collection efforts, and identify data deficiencies. Minimum maintenance effort will require $10,000.

~~ACCOMPLISHMENTS~~:

The wave information study has resulted in about 40 years of simulated directional wave data for the Atlantic and Pacific coasts and 30 years for the Gulf coast and the U.S. shores of the Great Lakes. Thirty years of wind data for the three coasts have also been produced. Computer models are used each year to add the current year of wind and wave information for all coastlines. Automated wave hindcasts/prediction systems have been developed for Lake Michigan, Atlantic and Pacific Coasts. This information provides the Corps with near real-time data for project use and increases the statistical validity of the database. Nearshore bathymetric data for the U.S. coastlines have been incorporated in the database. A data assimilation technique was developed to improve computer model calculations through statistical incorporation of measured data. The database of measured water levels along the Atlantic and Gulf of Mexico coastlines due to storms was updated through 1995. Joint efforts have been established with the States of California, Texas, Alaska, Florida, Washington, Oregon and Virginia for collection of wave data. Wave data have been acquired from program gages, numerous specific project stations, and from other agencies. Data standards have been implemented for data collection, analysis and quality assurance. Simulated and measured wave, water level and bathymetric data are available through an interactive website on the Internet.

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (continued)

~~PROGRAM ITEM~~	~~FY 2003~~	~~FY 2004~~
1. Wave Information	390,000	390,000
2. Wave Gauging	1,000,000	1,000,000
3. Topographic and Bathymetric Nearshore Data	100,000	100,000
4. Field Research Facility	1,000,000	1,000,000
5. Information Management	~~10,000~~	~~10,000~~
	$2,500,000	$2,500,000

2. Collection and Study of Basic Data

c. Other Programs (continued)

(7) Transportation Systems

~~SCOPE~~: The Transportation Systems Program supports Corps districts and Headquarters personnel in accomplishing their navigation project planning and evaluation responsibilities through the provision of integral information components. The process of planning improvements to waterway and harbor navigation projects necessitates the consideration of the needs, opportunities, benefits, and costs associated with project improvements within the context of the project specific area as well as within the context of the overall national transportation system. The transportation systems program is managed by CECW-P and is a continuous, on-going effort to ensure the development of sound analytical techniques, tools and methods; the development of deep draft and shallow draft vessel operating and replacement cost data which can be applied by District offices; the provision of timely updates of the world deep draft vessel fleet, commodity, and cargo flow forecasts; the publication of reports documenting the results of research associated with the Transportation System Analysis program; and the provision of technical services and support to District offices and Headquarters personnel. The goals of the Transportation System Program are as follows: (1) to improve the technical quality and accuracy of navigation planning studies as well as provide for consistency in analytical procedures across the wide array of planning conditions encountered by District personnel; (2) to improve the strategic planning of navigation systems improvements; and (3) to reduce the cost of planning and operation of the navigation system. These goals are accomplished by providing District and headquarters analysts with useful and consistent information and analytical tools and procedures, and result in an end product which reflects a responsible and worthwhile investment of government funds.

~~SUMMARIZED FINANCIAL DATA~~:

Estimated Five-Year (FY 2004-08) Program Cost	$ 4,500,000
Allocation Requested for FY 2004	500,000
Balance to Complete Five-Year Program after FY 2004	4,000,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY1999-FY2003	TBD

2. Collection and Study of Basic Data

c. Other Programs

(7) Transportation Systems (continued)

~~JUSTIFICATION~~: The $500,000 requested in FY 2004 for Transportation Systems would be used to update models and analysis used for the planning and evaluation of ports, harbors and inland waterways, and the modernization of planning methods and associated computer models to support District navigation studies nationwide. Funds would be used to continue to develop and provide inland and ocean vessel operating costs used to estimate transportation cost reduction benefits for Corps navigation studies; to continue to develop and provide commodity and fleet forecasts of waterborne traffic for deep and shallow draft navigation projects from industry forecasting experts, and to update deep draft vessel characteristics for use by Corps field planners; to provide rail, barge and truck models for use in estimating origin-destination transportation cost savings by Corps Districts; to complete the update of the *Grain Transportation Cost Model* to apply to evaluation of trade- policy changes to the flow of U.S. agricultural products world-wide; to complete the development of a standardized, cost efficient desktop model to evaluate the benefits of navigation projects; to continue development of the HARBORSYM and NAVSYM models; to provide consulting technical support services to Corps District offices; to continue the development of procedures for performing multiple port analyses to evaluate the trade-offs between development at competing ports within a given market area; to complete the tidal-delay model that would standardize the procedures, thus minimizing the effort and cost for each study needing to evaluate this component.

~~ACCOMPLISHMENTS~~: FY 2003 accomplishments are: Updated and published FY 03 deep draft vessel operating costs; updated fuel costs and posted to Headquarters Homepage; reviewed and published preliminary estimates and methodology to estimate ocean-going barge costs; completed an update of vessel characteristics for ocean-going barge costs; completed draft of navigation applications manual; secure and distribute information from WEFA-DRI, Sparks Companies, REEBIE Transportation models; complete inclusion of world-trade impacts into the Grain Transportation model; update the barge, rail and truck transportation models; complete the desktop tidal delay model; and, develop a framework for multiport procedures guidance.

2. Collection and Study of Basic Data

c. Other Programs

(8) Environmental Data Studies

~~JUSTIFICATION:~~ The Environmental Data Studies Program request is $100,000. Funds will be used to continue and to improve environmental program management performance. Funds will be used to continue development of an Internet accessible Environmental Database System, to support collection and sharing of environmental information for national and regional inventories and assessments and train field personnel in its access and use. We will begin development of a prototype environmental trend analyzer; coordinate our performance measurement and data cataloguing efforts with related environmental policy studies and GPRA according to work plans developed in FY 2001.

~~ACCOMPLISHMENTS FOR FISCAL YEAR 2002:~~

Developed a working prototype of the Environmental Database System (EDS). Using only an internet browser such as Netscape, EDS-Atlas allows researchers to develop performance statistics for selected states, Corps offices or other geographic areas, as well as for each of the major Corps environmental programs (Section 1103, 1135, 204, etc.). 105 CAP reports have been reviewed and entered in the database (1135, 1103, 206 and 204). EDS-Encyclopedia, accessible through the same address is a research tool for those engaged in environmental studies. EDS-Encyclopedia provides ratings for the quality and ease of use of each linked site. It also provides "deep" links directly to data sources, rather than the more commonplace links to agency homepages that require considerable additional search time.

~~ACCOMPLISHMENTS FOR FISCAL YEAR 2003:~~

1. Update data for Corps projects that are already in the EDS but have proceeded to another stage. Complete quality control for entered reports.
2. Continue to add new CAP projects to the database. Expand the database to specifically authorized environmental restoration projects.
3. Design a strategy to track the Corps mitigation for environmental impacts from Corps projects.
4. Design and initiate efforts to support environmental reporting per GPRA.
5. Lessons learned report on IWR review of Environmental reports for performance data.
6. Continue to maintain, add and rate websites in Encyclopedia.

2. Collection and Study of Basic Data

c. Other Programs

(9) Remote Sensing Systems Support

This item supports the overall technology transfer requirement of the Corps Civil Works Program for Remote Sensing systems, which is the responsibility of the Cold Regions Research and Engineering Laboratory (CRREL) through its Remote Sensing/Geographic Information Systems (GIS) Center of Expertise.

~~SUMMARIZED FINANCIAL DATA:~~

Estimated Five-Year (FY2004-2008) Program Cost	$1,500,000
Allocation Requested for FY 2004	200,000
Balance to Complete Five-Year Program after FY2004	1,300,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY1999-2003	TBD

~~JUSTIFICATION:~~

The Remote Sensing/GIS Center is the Corps' Center of Expertise for Civil Works Remote Sensing and GIS technologies. Through centralized management of this function, the Center provides cost-effective technology transfer and applications development in support of Corps mission responsibilities in all business practice areas: navigation, flood and coastal storm damage reduction, hydropower, regulatory, environment, emergency management, recreation, water supply, and work for others. Continuing interaction with other researchers and practitioners throughout the Corps, government, the private sector, and academia assures knowledge of evolving trends that are important for the Corps and that duplication of effort is avoided.

Declines in manpower require working smarter, better, and faster. Contributing to this effort, the Center develops approaches for the integration of data from the disparate sources necessary for regional sediment management, water control, land and water resource management, support to emergency management, and compliance with the attendant environmental regulations and related policies. The Center maintains cognizance of state-of-the-art sensors, data collection, analysis, and storage systems, commercial software, and bridging software that integrates these and operational technologies into the Corps divisions, districts, and other agencies' activities. Technology is transferred through telephone and short no cost assistance to the field. The existence of the Center ensures that the necessary support can be rapidly directed toward solving operational problems that require specialized expertise. The PROSPECT training program in remote sensing and GIS, managed by Center staff, provides another avenue for the transfer of knowledge to those who are, or soon will be, using these technologies. Training also is conducted in the field, through workshops and conferences. White papers, pilot projects, Corps and other publications, including Engineering Letters, Circulars, and Manuals, and the Internet, also are used to transfer procedures and lessons learned to end users.

2. Collection and Study of Basic Data

c. Other Programs

(9) Remote Sensing Systems Support (continued)

~~ACCOMPLISHMENTS IN FY 2003:~~

1. Served as key resource and technology point of contact for the Corps of Engineers for Civil Works remote sensing and GIS.

2. Managed, distributed and contributed funds toward contract for enterprise geospatial data to all Corps entities.

3. Continued technology transfer through training courses, briefings, technical papers, technical demonstrations, pilot programs, and conferences.

4. Supported national geospatial data viewer development for Corps programs.

5. Implemented a geospatial system for tracking of hazardous and toxic materials on barges.

6. Provided state-of-the-art remote sensing, image processing, and geospatial data systems support to the Corps Civil Works Program through management of the Geospatial Program Area, Remote Sensing, and GIS R&D Programs. Analyzed and reported on general and application specific geospatial R & D.

7. Supported one-stop service requests from Corps districts and divisions.

8. Served as a member of the Program Development Team for the Corps' Science, Engineering and Technology business process transition.

9. Provided the venue for and taught 7 Corps PROSPECT GIS training courses and 1 Remote Sensing course.

10. Provided technical support to Corps District offices for the development of implementation plans for Geospatial data management including development of enterprise geospatial data approaches.

11. Developed and distributed national geospatial data coverages for emergency management and other Corps business practice applications.

12. Member of the CADD/GIS Technology Center's advisory support team.

13. Served as a member of the Corps' Informatics Program Development Team.

2. Collection and Study of Basic Data

c. Other Programs

(9) Remote Sensing Systems Support (continued)

14. Assisted with the development of a Corps Common Delivery Framework to promote more efficient development of R and D products.

15. Sponsored and participated in program development of national and international remote sensing and GIS conferences.

16. Hosted web sites for ice jams and snow melt forecasting.

17. Provided civil funds to the CCIO to support identifying field imagery requirements.

ACCOMPLISHMENTS IN FY 2002

1. Served as key resource and technology point of contact for the Corps of Engineers for Civil Works remote sensing and GIS.

2. Acquired and distributed enterprise geospatial data to all Corps entities. With HQUSACE, evaluated Corps geospatial data requirements.

3. Reviewed work in other civil works R & D programs to assure nonduplication of geospatial research and development in multiple programs.

4. Continued technology transfer through training courses, briefings, technical papers, technical demonstrations, pilot programs, and conferences.

5. Worked with HQUSACE to expand capability of a Corps-wide GIS Map viewer for common data.

6. Developed national geospatial data viewers for Corps programs.

7. Provided the venue for and taught 7 Corps PROSPECT GIS training courses and 1 Remote Sensing course; continued development of PROSPECT image processing course. Also provided the venue for a GIS course for North Atlantic Division.

8. Provided state-of-the-art remote sensing, image processing, and geospatial data systems support to the Corps Civil Works Program through management of the Geospatial Program Area, Remote Sensing, and GIS R&D Programs. Analyzed and reported on general and application specific geospatial R & D.

9. Provided technical support to Corps District offices for the development of implementation plans for Geospatial data management including development of enterprise geospatial data approaches.

10. Supported one-stop service requests from Corps districts and divisions.

2. Collection and Study of Basic Data

c. Other Programs

(9) Remote Sensing Systems Support (continued)

11. Developed and distributed national geospatial data coverages for emergency management and other Corps business practice applications.

12. Member of the CADD/GIS Technology Center's advisory support team.

13. Member of the Science and Engineering Technology (SET) Program Development Team and member of the team that developed the SET proposal.

14. Sponsored and participated in program development of national and international remote sensing and GIS conferences.

15. Developed a new version of the Corps' Remote Sensing Manual that includes high resolution satellites and hyperspectral and digital airborne systems.

16. Hosted web sites for ice jams and snow melt forecasting.

17. Assisted with the development of a Corps Common Delivery Framework to promote more efficient development of R and D products.

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~~SCOPE~~: This effort provides technical support to engineers and scientists utilizing CADD and GIS technology in the planning, design, construction, operation and maintenance of Corps projects. However, as there is no way of calculating the benefits which individual projects receive from the CADD/GIS Center, the Corps does not propose to charge projects and programs for the Civil Works share of its maintenance costs.

In 1992, the former Army Corps of Engineers' Computer Aided Design and Drafting (CADD) Center, located in the Army Engineer Waterways Experiment Station (WES), was expanded to an Army, Navy, Air Force (Tri-Service) center, including the addition of Geographic Information Systems (GIS) technology, by a joint agreement between the Corps, the Naval Facilities Engineering Command, and the Air Force Civil Engineer. Its purpose was to reduce duplication of effort between the three services in the management of CADD/GIS technology for facilities and environmental engineering. Since that time, the Defense Logistics Agency (DLA), the General Services Administration (GSA), State Department, U.S. Marine Corps, U.S. Coast Guard, National Institute of Building Sciences, NIMA, EPA, and NASA have joined this effort. As a result, this Center is a multi-agency vehicle to set standards, coordinate CADD/GIS systems uses, promote system integration, support centralized acquisition, and provide assistance for the installation, training, operation, and maintenance of CADD/GIS systems within the DoD facilities and environmental communities, including the Corps districts. All Corps districts that use CADD and GIS in mapping, planning, real estate, design, construction, operations, maintenance, and homeland defense and readiness benefit from the Center's efforts.

2. Collection and Study of Basic Data

c. Other Programs

(10) Automated Information Systems Support - Tri-Service CADD/GIS Technology Center (continued)

~~SCOPE~~: This effort provides technical support to engineers and scientists utilizing CADD and GIS technology in the planning, design, construction, operation and maintenance of Corps projects. However, as there is no way of calculating the benefits which individual projects receive from the CADD/GIS Center, the Corps does not propose to charge projects and programs for the Civil Works share of its maintenance costs.

In 1992, the former Army Corps of Engineers' Computer Aided Design and Drafting (CADD) Center, located in the US Army Engineer Waterways Experiment Station (WES), was expanded to an Army, Navy, Air Force (Tri-Service) center, including the addition of Geographic Information Systems (GIS) technology, by a joint agreement between the Corps, the Naval Facilities Engineering Command, and the Air Force Civil Engineer. Its purpose was to reduce duplication of effort between the three services in the management of CADD/GIS technology for facilities and environmental engineering. Since that time, the General Services Administration (GSA), U.S. Marine Corps, U.S. Coast Guard, National Institute of Building Sciences, NIMA, EPA, and NASA have joined this effort. As a result, this Center is a multi-agency vehicle to set standards, coordinate CADD/GIS systems uses, promote system integration, support centralized acquisition, and provide assistance for the installation, training, operation, and maintenance of CADD/GIS systems within the DoD facilities and environmental communities, including the Corps districts. All Corps districts that use CADD and GIS in mapping, planning, real estate, design, construction, operations, maintenance, and homeland defense and readiness benefit from the Center's efforts.

For FY 2003, the OMA funding portion was $2,336,000, The Civil Works portion was $450,000, the Naval Facilities Engineering Command portion was $250,000, the Air Force Civil Engineer Command portion was $100,000, and the U.S. Marine Corps portion was $100,000 for a total of $3,236,000. The $450,000 requested for FY 2004 for the Civil Works portion will support approximately 1,000 workstations and 2,000 users of CADD/GIS technologies for Civil Works Projects.

~~SUMMARIZED FINANCIAL DATA~~:

Estimated Five-Year (FY 2004-2009) Program Cost	$3,250,000
Allocation Requested for FY 2004	450,000
Balance to Complete Five-Year Program after FY 2004	2,800,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

~~JUSTIFICATION~~: All Corps districts use CADD and GIS computer systems for Civil Works engineering, design, mapping, planning, and facility management. All engineering drafting tables have been replaced with CADD platforms or computer mapping systems and most Crops environmental and natural resource analysis are being performed on GIS platforms. The geospatial data standard efforts of the Center were coordinated with the American National Institute of Standards to develop a National GIS Standard which was approved in November 2001 and includes civil works and homeland defense features. Standards and productivity enhancement tools developed by the Center are used for both in-house and contractor produced drawings, maps and analyses, which assure that all Corps offices 2. Collection and Study of Basic Data

d. Other Programs

(10) Automated Information Systems Support - Tri-Service CADD/GIS Technology Center (cont'd)

have the ability to exchange their work among themselves and with others, including the private sector. The Center is actively coordinating its CADD standards 2.0. with the National Institute of Building Sciences and has created a National CADD Standard, thus reducing the redundancy with the private sector and reducing cost for both government and the private sector. The Center ensures that the Corps obtains the maximum return on its investment in CADD and GIS by coordinating development efforts and distributing end products to Corps offices. The CADD and GIS systems at field offices can achieve maximum productivity when they take advantage of the economies of scale offered by sharing the development and use of common data standards, procedures, and applications. This sharing is accelerated through a concerted effort by the Center, working with various field working groups, to draw from field expertise and dissemination of this knowledge in the form of lessons learned and standards to benefit all Corps users. Comprehensive data standards supported by the Center permit government and industry users to produce equivalent designs, maps and analysis on a variety of computer systems using commercial off-the-shelf CADD and GIS software.

~~ACCOMPLISHMENTS IN FY 2003~~:

1. Release 2.1 of the A/E/C CADD Standard (both document and software tools) was released on CD-ROM and via the web. This released was distributed by several software vendors as part of their application (e.g. SoftPro, SiteMenu). Software updates included: (1) the File Converter, which can convert a CADD file that conforms to the former Corps EM 1110-1-1807 CADD Standard to Release 2.1 of the A/E/C CADD Standard, and (2) the File Manager, which assists users in naming files so they are compliant with Release 2.1 file naming conventions. Implementation software for both MicroStation and AutoCAD were released. Several training classes were taught.

2. The GIS Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) Release 2.3 was completed. The SDSFIE included continued development of the GIS data standards for Civil Works activities, which provide a common data format for the development of GIS on civil works projects, thereby cutting costs and allowing sharing of data sets among government agencies and the private sector. Electronic tools were developed to facilitate the construction of GIS datasets for various GIS vendor products (e.g. Intergraph's GeoMedia and ESRI's ArcGIS).Several training courses on implementation and use of GIS data standards were conducted.

3. Enhanced the Electronic Bid Solicitations (EBS) program by establishing a Central Listing of all bid solicitations from DoD agencies and continued to work with *The Bluebook* company to make solicitations available to a wider audience. The Center instituted an EBS hosting service at WES to support those offices/agencies lacking the expertise to develop their own. Continued development of a totally "online" bid process.

4. Developed a core set of FEMA hazard and disaster standards for inclusion into the SDSFIE. Disaster coordinators are able to analyze data more quickly and accurately to facilitate data sharing and upward reporting.

5. Continued development of the facility management standard (FMSFIE). Continued the incorporation of "legal" reporting requirements (data) necessary for Army Corps of Engineers, Army, Air Force, Navy, Coast Guard, GSA, and OSD.

2. Collections and Study of Basic Data

c. Other Programs

(11) Flood Damage Data Program

SCOPE: The Flood Damage Data Program is required to facilitate the collection and maintenance of basic flood damage data to support Corps field offices in accomplishment of flood damage reduction studies. Planning and evaluation of flood damage reduction projects requires knowledge of actual damages caused to various types of properties. The relationships between flood depth, flood duration and velocity, value and type of property, and the amount of damage are essential to making accurate and supportable estimates of the value of projects. The distributions of damages resulting from the various factors involved are needed for the risk analysis framework adopted for water resource studies. Damage data are obtained in rare instances when a damaging event occurs and funded studies are underway. However, in most instances when flooding occurs there are no current studies in the area or other funding mechanism to collect the requisite data to be used in future analysis or to report and accurately record the damages incurred and account for the effect of the factors that caused the damages. Previously no centralized flood damage data source existed which retrieved basic data for research efforts and for specific project studies. The major purpose of the program is to improve the technical quality and accuracy of flood damage data, to improve the understanding of the interrelationships of the characteristics of flooding on property damage, to improve the formulation of flood damage reduction projects, and reduce the costs of feasibility studies. Coastal damage data collection will be needed to adapt to new coastal protection policies and to respond to concerns from the Office of the Assistant Secretary of the Army (Civil Works) in the review of recent coastal protection projects. The activities of the program are to: (1) conduct actual flood damage surveys following flood events for riverine and coastal events; (2) develop, maintain, and improve the economic database for flood damage reduction projects; (3) calculate flood depth-damage functions for riverine and coastal flooding based on actual damage data; and, (4) develop and maintain a floodplain inventory application that would be used to apply flood damage estimation models to feasibility, reconnaissance, and continuing authority studies.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-08) Program Costs	$3,500,000
Allocation Requested for FY 2004	300,000
Balance to Complete Five-Year Program after FY 2004	3,200,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1998 – 2003	TBD

2. Collections and Study of Basic Data

c. Other Programs

(11) Flood Damage Data Program (continued)

~~JUSTIFICATION:~~ The $300,000 requested in FY 2004 for Flood Damage Data would be used to develop and maintain data collection survey forms and data collection techniques, to collect post-flood damage data, to employ the flood damage database to estimate a National model where regional or local flood characteristics can be specified to estimate flood damage relationships, to update and maintain a computer application for applying flood damage models to floodplain inventory data, and to develop generic business flood damage relationships. Funds would be used to monitor data collection, to collect damage data for riverine and coastal flood events, and data analysis and the development of generic damage relationships.

~~ACCOMPLISHMENTS:~~

1. Flood damage surveys, using material from OMB-approved questionnaires have been developed, reviewed, and pre-tested.
2. Data collection techniques and data tabulation procedures have been developed. Data collection procedures have been documented in a primer for Corps field personnel and contractors.
3. Over 2,200 residential surveys and approximately 700 business surveys have been completed for properties in 19 states. A database has been created from these surveys and analysis is continuing. Several reports have been issued documenting the case studies and damage function computation.
4. Generic residential content and structure damage functions have been released for single-family homes.
5. Generic business structure damage functions and vehicle damage functions have been computed and documented.
6. A research design report has been completed for further development of risk-based damage function calculation, using additional data from building industry component costs models and data collected as part of this program.
7. A residential depth-damage function application has been released for Corps-wide use. The application will be used to determine the depth-damage relationships based on building characteristics and county-specific building costs. The model has incorporated structure and content estimation and structure and content damage for a comprehensive array of structure types, foundation types, exterior building material, quality, and period of construction. The model has been released to Corps districts for integration with the HEC-Flood Damage Analysis Package for evaluation of flood damage reduction benefits.
8. A review of potential methodologies and data sources for estimating flood damage to roads has been completed. A preliminary model for estimating flood damage to roads has been released and field-tested.
9. Approximately 150 records have been collected on homes that have suffered coastal flood damage.
10. A research design report has been completed for further development of risk-based damage function modeling for coastal storm damage.

3. Research and Development

The Corps must pursue an aggressive R&D effort to take advantage of rapidly developing technologies and techniques that offer the possibility of significant monetary savings and greater reliability, safety, enhanced efficiency, and environmental sustainability in planning, design, construction, operations and maintenance of civil works activities.

The Civil Works R&D program is formulated to directly support the established business programs and strategic directions of the Civil Works Program including: flood and coastal storm damage reduction, inland and coastal navigation, environment (including natural resources, compliance, mitigation, and restoration), water supply, hydropower, recreation, emergency management, and regulatory. The Civil Works R&D requirements are primarily user driven and the effort is essentially a problem-solving process by which the Corps systematically examines new ideas, approaches, and techniques, with a view toward improving the efficiency of its planning, design, construction, operations and maintenance activities. The request for $22,000,000 of General Investigations funds for the FY 2004 program would accomplish only the very highest priority R&D needs.

Results of this R&D effort are directly incorporated into practice within the Civil Works Program through the Civil Works Guidance Maintenance Program involving revisions or additions to Engineer Regulations, Engineer Manuals, Technical Guidance Manuals, Engineer Technical Letters, or Guide Specifications. Numerous other means of technology transfer are also used such as training courses, workshops, and other professional contacts. The Corps Civil Works R&D Program continues to provide practical end products and a high return on investment for the Corps and the Nation.

~~COORDINATION:~~

The Corps manages and conducts Civil Works R&D through the U. S. Army Engineer Research and Development Center (USAERDC). The USAERDC consists of seven research laboratories:

Coastal and Hydraulics Laboratory, Vicksburg, MS
Cold Regions Research and Engineering Laboratory, Hanover, NH
Construction Engineering Research Laboratory, Champaign, IL
Environmental Laboratory, Vicksburg, MS
Geotechnical & Structures Laboratory, Vicksburg, MS
Information Technology Laboratory, Vicksburg, MS
Topographic Engineering Center, Alexandria, VA.

Some elements of Civil Works R&D are also assigned to the Corps Institute for Water Resources (IWR) at Fort Belvoir, VA and its Hydrologic Engineering Center (HEC) at Davis, CA.

3. Research and Development

In order to most effectively use the limited R&D resources and to avoid unnecessary duplication of research effort, the Civil Works R&D Program maintains aggressive external technical exchange and technology transfer programs with other Federal agencies including the TVA, Bureau of Reclamation, Bonneville Power Administration, Western Power Administration, the Soil Conservation Service, EPA, NRCS, and the Fish and Wildlife Service. In addition, Corps researchers are in continuous close contact with NOAA, USGS, USCG, NASA, DOT, NIST, FHWA, NRC, the Navy, and state and local governments concerning Civil Works R&D activities.

Corps researchers also maintain continuing contact with the research activities of universities and industry through regular membership in such organizations as the American Society of Civil Engineers, the Civil Engineering Research Foundation, the American Concrete Institute, the American Society of Testing and Materials, the International Conference on Coastal Engineering, the American Association of Port Authorities, the American Society for Photogrammetry and Remote Sensing, the Coastal Society, the Offshore Technology Conference, International Society of Soil Mechanics and Foundation Engineering, U.S. and International Committees on Large Dams, the Association of American Geographers, and the Permanent International Association of Navigation Congresses. The Corps also participates extensively with the Transportation Research Board, the Water Science and Technology Board, and the National Research Council in coordinating and leveraging research activities.

SUMMARIZED FINANCIAL DATA:

Estimated Five Year (FY 2004 - FY 2008) Program Cost	$180,000,000
Allocation Requested for FY 2004	22,000,000
Balance to Complete Five Year Program after FY 2004	158,000,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-FY 2003	TBD

3. Research and Development

~~CURRENT RESEARCH EFFORT~~**:**

The proposed FY 2004 R&D Program is structured to directly support the Civil Works business programs and the anticipated technological requirements of the Civil Works Program. Strategic emphases of the R&D program include:

Regional Sediment Management (RSM)
Systems-Wide Modeling, Assessment & Restoration Technologies (SMART)
Technologies and Operational Innovations for Urban Watershed Networks (TOWNS)
Common Delivery Framework (CDF)
Navigation Economic Technologies (NETS)

Improved sediment management at navigation and flood damage reduction projects offers tremendous potential for future project cost reduction. Research in this area is focused on sedimentation prediction and control techniques, optimizing channel depths and dimensions including more cost-effective deep-draft channel design criteria to safely and efficiently accommodate future international shipping requirements, reduced dredging costs, increased navigation channel safety and reliability, and increased options and opportunities for beneficial uses of dredged sediment. Close coordination will be essential between this research area and the SMART research program discussed below.

The Systems-Wide Modeling, Assessment & Restoration Technologies (SMART) Research Program addresses the Corps water resources needs at the system/watershed level. The objective of this research effort is to design state-of-the-science, user-oriented methods and procedures to restore and manage natural resources with application toward the total ecosystem/watershed. Research is also focused on environmental restoration technologies for a wide range of water resources management needs. The focus of this research enables the Corps to meet the legal requirements of the National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA), while supporting critical technology needs of the major civil works business programs of Environmental Restoration, Navigation, and Flood Damage Reduction.

The Technologies and Operational Innovations for Urban Watershed Networks (TOWNS) research will include the following major thrust areas: integrated decision support tools and forecasting methodologies for use in flood damage reduction that incorporate changing urban settings, climate changes and extreme events; technologies for sustainable urban flood damage reduction (structural and non-structural); real-time surveys and system monitoring for improved condition assessment; and expedient and cost-effective flood fighting and related emergency operations.

The objective of the Common Delivery Framework (CDF) research is to develop a new framework approach to managing software guidance, capabilities and resources for model/application developers in a consistent and corporate context that enables the Corps to reduce costs for developing and applying science and technology (S&T) products. The initial work will investigate geospatial S&T development in the areas of information security, metadata, interoperability, enterprise GIS, visualization, and informatics.

3. Research and Development

APPROPRIATION TITLE: General Investigations, FY 2004

The objective of the Navigation Economic Technologies (NETS) research program is to enhance and standardize evaluation tools and methods for shallow and deep draft navigation project life-cycle analysis. The NETS R&D program will develop peer-reviewed procedures and tools that will be used throughout the Corps by concentrating on the following areas: (a) expanded and improved capabilities to forecast navigation traffic in ports and on waterways; (b) improved tools and approaches to evaluate and perform calculations of transportation economic benefits and costs; (c) integration of tools and approaches for systems evaluation and management; (d) improved capabilities to integrate economic, environmental, and other factors for navigation system investment and management; (e) procedures for integrating uncertain variables within the economic evaluation of navigation; (f) extension of benefit evaluation to include congestion, air quality and other externalities; and (g) improved methods and data support for all modes of transportation of commodities from production site to ultimate consumption.

The Corps R&D Program includes six major research areas, as listed below:

Navigation Systems: Includes specific deep-draft (including Great Lakes) focused R&D programs on harbor entrances and coastal channels, coastal sedimentation and dredging, coastal structure evaluation and design, inland navigation hydraulics, and regional sediment management.

Flood and Coastal Protection: Includes specific R&D programs on flood damage reduction and stream restoration, hydrologic engineering, cold regions engineering, and innovative flood protection and urban channel restoration.

Environmental Technologies: Includes specific research on watershed assessment technologies, ecosystem management and restoration, long-term effects of dredging operations, and system-wide modeling, assessment, and restoration technologies.

Infrastructure Engineering: Includes specific research on high-performance materials and systems, sustainable infrastructure technologies, risk analysis for dam safety, and cost-effective seismic rehabilitation.

Geospatial Technologies: Includes specific research on survey and mapping, remote sensing, geographic information systems (GIS) and geospatial data management, and a common delivery framework for Science and Technology tool delivery that support all civil works business programs.

Integrated Technologies for Decision Making: Includes specific research on Decision Support Technologies for the Civil Works program, risk analysis of water resources investments, and navigation economic technologies.

3. Research and Development

RESEARCH AREA	FY 2003 ALLOCATION	FY 2004 TENTATIVE ALLOCATION
a. Navigation Systems	TBD	$6,000,000
b. Flood and Coastal Protection	TBD	3,800,000
c. Environmental Technologies	TBD	3,900,000
d. Infrastructure Engineering	TBD	3,100,000
e. Geospatial Technology	TBD	2,700,000
f. Integrated Technologies for Decision Making	TBD	2,500,000
	TBD	$22,000,000

APPROPRIATION TITLE: General Investigations, FY 2004

3. Research and Development

a. Navigation Systems

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-2008) Program Cost	$ 40,000,000
Allocation Requested for FY 2004	6,000,000
Balance to Complete After FY 2004	34,000,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:

The Corps of Engineers' navigation mission is to provide safe, reliable, efficient, effective, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation. The U.S. Marine Transportation System (MTS) consists of over 300 ports, 1,000 harbor channels, and 25,000 miles of navigation channels, and is an integral part of both the U.S. economy and national security system. The MTS contributes more than $700 billion per year to the gross domestic product, produces $150 billion per year in federal taxes, and employs more than 13 million people. It supports rapid deployment of military forces and movement of equipment and supplies from strategic ports. Despite the importance of the MTS, it is under serious strain to maintain global competitiveness and national security. The Congressionally mandated interagency MTS task force and maritime industry report that commercial navigation will double by 2020; yet the MTS is already operating at near-full capacity in many areas and is being challenged by new vessel designs and traffic loads that exceed its channel, harbor, and lock capacities. Over 50 percent of the Corps' 191 lock sites have exceeded their 50-year design life.

The Corps of Engineers' navigation project infrastructure encompasses a capital stock valued at approximately $31.5 billion with an annual budget of about $1.9 billion, which is not enough to meet existing needs, much less the projected demand on the system. The U.S. faces a loss in global competitiveness unless it addresses the navigation system's maintenance and modernization needs.

Excessive sediment erosion, transport, and deposition are estimated to cause damages of approximately $16 billion annually in North America. The Corps dredges about 285 million cubic yards per year at a cost of about $800 million. Sediment overloading from land and stream erosion causes significant environmental and economic challenges – excessive sediment in rivers, reservoirs, and estuaries may contribute to high turbidity, to loss of flood-carrying capacity, and to loss of full channel dimensions in navigation facilities. Yet, in other areas, a shortage of sediment causes coastal erosion, streambank erosion, and wetlands loss in many locations. Constraints on disposal of dredged sediments place severe restrictions on the USACE ability to deepen and widen, or even fully maintain navigation channels, and causing delays to commercial traffic. Management of sediment at regional scales has been specifically identified as a key component of high performance, environmentally sustainable water resource projects.

3. Research and Development

a. Navigation Systems

Water resource projects can be designed and operated to remedy local sediment problems, but sometimes at the expense of creating even larger problems some distance away. Successful project design and operation requires that sediment issues be resolved at both the local and regional levels, yet resource managers lack the information and tools they need to make informed decisions. These challenges adversely affect navigation, flood and storm damage reduction efforts, and environmental quality in water resource projects. The 1999 MTS Task Force report provides a national vision for the MTS of 2020 and recommends research and development (R&D) on overall effective sediment management, including " . . . holistic watershed and local/regional planning efforts."

In light of these pressing national needs, this research area provides tools and technology for the Corps of Engineers to improve the navigation system's functional performance, preserve and enhance environmental quality of our waterways, reduce unit costs, and improve safety. Specific objectives of this research area are to develop engineering technologies that increase the effectiveness and reduce the per project costs of harbor and channel projects that provide deep-draft and shallow-draft navigation for domestic and international commerce. Engineering tools, computer models, and design guidance are developed for defining and managing water levels and currents that affect navigation and sedimentation, waves that impact coastal structures and drive sedimentation processes, sediment that settles in navigation channels and harbors, and vessel transits within navigation channels and structures. Innovative methods are developed to enable rapid and economical navigation facility design, construction, repair, and rehabilitation. The program balances economic and environmental constraints to provide critical support to present-day problems facing the Corps of Engineers and to strategically prepare for the demands of the future on the U.S. navigation system.

~~FY 2004 ACTIVITY~~:

1. Regional Sediment Management. Maintaining navigable waterways and flood channels in the face of continuing sediment deposition consumes a substantial portion of the Corps of Engineers' budget. More effective sediment management could reduce dredging costs and potentially adverse environmental impacts in many projects by diverting sediment from channels and into designated deposition zones, stretching dredging funds further and keeping more projects fully maintained. An understanding of sediment processes is critical for producing cost-effective plans and designs for effective navigation projects, estimating channel shoaling, locating optimum dredged-material placement, and assessing the impact of navigation projects and structures on adjacent waters, shorelines, and downstream areas. Technologies will be developed to measure sediment transport, provide the fundamental knowledge required to evaluate alternative strategies for sediment management, and minimize or mitigate navigation-project impacts. Supporting the Corps' environmental operating principals, RSM will provide critical assessment tools for systemic management of sediment in an environmentally sustainable manner. Concurrent with research on the behavior of complex sediment transport processes, expansion of multi-dimensional hydrodynamic and geomorphic models to system-scale applications will begin. Plans for integration of models into an analysis framework for decision support will also get started. Specific products will include screening tools for analysis of sediment budgets for both riverine, estuarine, and coastal systems; algorithms for incorporation into models regarding sediment processes related to freeze-thaw, erosion of fine grain sediments, and sediment sorting; interagency framework for integrated RSM regionally; monitoring and measurement to support geomorphic and hydrodynamic model development.

3. Research and Development

b. Navigation Systems

2. Navigation Systems. Research will continue to support innovative approaches for designing and operating the navigation infrastructure. Balancing the program to cover both coastal and inland hydrodynamics and processes, technologies will be developed that improve the safety, economic viability, and environmental opportunities in our deep and shallow-draft waterways and harbors. Research will lead to optimizing navigation channel dimensions and depths based upon

hydrodynamic forces, ship motions, and the future vessel fleet. Research will also lead to reliably and accurately describing and managing hydrodynamics in waterways and locks so that vessels transit more quickly and safely. Wave transformation modeling improvements will be applied on coastal navigation projects to improve design. Guidance for life-cycle analysis of both inland and coastal structures will be completed. Longshore sediment transport predictive techniques will be completed for inclusion in predictive models. Boussinesq modeling of waves in entrance channels will be applied to specific navigation problems. Innovative concepts for protection from hydrodynamic forces for in-the-wet construction and operation of navigation projects will be demonstrated. Methods for accurate underwater placement of riprap will be developed.

~~FY 2003 ACCOMPLISHMENTS~~:

1. Numerical methods were validated for evaluating the hydrodynamics of bendway weir training structures. Design guidance was developed regarding appropriate dimensions for spacing, height, length, and angle relative to safe navigation. These structures have resulted in millions of dollars in savings from reduction in dredging requirements, improved navigation efficiencies, improvement in navigation safety, reductions in traffic delays, and numerous environmental benefits.

2. Guidance for design of navigation channels pertaining to required underkeel clearance was developed for both inland vessels and deep-draft vessels in entrance channels. With increasing vessel drafts and continued improvements in bulk carrier and intermodal transportation efficiencies, more accurate channel design guidance will enable greater capacity in existing navigation channels and optimize maintenance dredging costs

3. Design guidance on various wall types was developed to insure safe, efficient navigation conditions. The cost of traditional lock guard walls is on the order of $20,000 per linear foot. This guidance optimizes the length and type of wall used to minimize unnecessary costs. Improvements to lock approaches have a high potential for reducing traffic delays on the inland waterway system and increasing the capacity of existing locks.

4. Continuing efforts from the Innovations for Navigation Program, guidance on barge impact of structures, innovations for lock automation, and improved ice and debris predictive methods were completed. These products will produce tremendous benefits to authorized inland projects such as McAllpine, Inner Harbor, the Soo locks, Olmsted and others.

5. Wave and littoral transport models were improved, with more realistic physics incorporated and a standard graphical user interface adapted for their use. Extensive field data sets were used to improve the models' formulations and prove their reliability. The Diagnostic Modeling System for coastal channel sedimentation problems was put into use on several projects. These tools will collectively provide the Corps with more effective management of coastal navigation projects with less impact on adjacent shorelines.

3. Research and Development

a. Navigation Systems

6. Evaluation of an alternative physical modeling technique called micro-modeling was completed. This research explored the use of a smaller scale movable bed model helping screen navigation operations alternatives in a riverine environment.

7. Quantitative methods were derived for predicting breakwater damage on rubble-mound structures. This methodology was incorporated in a risk and reliability model to help prioritize maintenance and rehabilitation funds for coastal structures.

APPROPRIATION TITLE: General Investigations, FY 2004

APPROPRIATION TITLE: General Investigations, FY 2004

3. Research and Development

b. Flood and Coastal Protection

~~SUMMARIZED FINANCIAL DATA:~~

Estimated Five-Year (FY 2004-2008) Program Cost	$30,000,000
Allocation Requested for FY 2004	3,800,000
Balance to Complete after 2004	26,200,000
Allocation for FY 2003	TBD
Change in FY 2004from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

~~JUSTIFICATION:~~

In carrying out the Flood and Coastal Storm Damage Reduction mission, the Corps of Engineers operates 383 major lakes and reservoirs, maintains 8,500 miles of levees, and has over 100 coastal storm-damage reduction and related projects. The average annual flood damage prevented by Corps' projects from 1985 to 1994 was $14.6 billion. Return on investment from 1928 to 1993 has been 8.41:1. Flood damages continue to occur across the United States at about $4 billion annually. In the past five years, Federal shore protection expenditures have increased to more than $100,000,000 per year. The largest population growth areas in the United States are urban areas, particularly those near the coast and along rivers. The 2000 census showed that 54% of the US population lives within 50 miles of a coast. American watersheds have been significantly altered by natural events and human activities, including the construction of dams, levees, diversion structures, and the straightening, widening, deepening, and clearing of channel systems, that have been undertaken for flood control, navigation, water supply, sediment management, irrigation, recreation, hydropower, mining, and fish and wildlife habitat improvement. Urbanization patterns in our nation's watersheds have also affected their hydrology, changing flood characteristics such as peak stage and time to peak. The cumulative impacts of these types of activities, combined with watershed changes such as deforestation, have significantly disrupted the dynamic equilibrium of stream systems and the ecosystems of which they are a part.

Research for both coastal shore protection and inland flood damage reduction is now focusing upon reducing the life cycle costs and the loss of life and property. There is a need to develop technologies for inland flood, coastal shore protection, beach nourishment and the unique flood damage reduction demands of urbanized settings that ensures that each project is sustainable. In the inland area, there has been a shifting focus for new projects from large flood damage reduction projects towards watershed management and smaller flood damage reduction systems. This has required an emphasis on the development of appropriate design guidance and planning and engineering technology to accelerate the process of restoring channels in a more cost-effective and environmentally sound manner. The sedimentation response of flood-control channels; bank protection methods for flood-control and navigation channels; ice impacts on flood-control and navigation channels and structures; and impacts of climate change on hydrologic events will be addressed.

Historically, the focus of the Corps' efforts has been on the construction of large infrastructure projects for flood control and navigation, with an emphasis on sociological and environmental goals in the past several decades. The implementation of risk analysis in the planning of Corps projects has allowed a

quantitative evaluation of the benefits and costs associated with different levels of protection while at the same time demonstrating that flood damage protection may not be an attainable goal, particularly in urban areas where there is extensive subsurface development. As a result, effective flood damage reduction projects in urbanized inland and coastal areas will require innovative planning, design, construction, operation and maintenance, and emergency response methods to provide adequate protection for current and projected growth. As new and innovative technologies and methodologies are developed, it will be critical to transfer information about these innovations to the Corps, other Federal, state, and local agencies, and to the public as quickly and efficiently as possible so that they can be effectively applied. It is equally important to validate the applicability of the innovative technologies through demonstrations at Corps projects. There has been a new focus on development of innovative technologies for existing flood damage infrastructure, especially levees. New technologies are needed to ensure existing levees provide the authorized level of protection and to assist with flood fighting operations. Innovative use of remote sensing for detection of weakened levees, satellite linked GIS/GPS laptops to assist with onsite flood fighting, and improved flood forecasting capabilities must be integrated.

While the emphasis for types of new projects is shifting, concurrently, existing projects must be optimally consistent with authorized purposes. Improved analysis methods for decision support for reservoir operations are needed. Also, watershed and riverine analysis methods need improvement to take advantage of new real-time data sources, such as precipitation radar, to accurately forecast real-time flow and stages. In addition, advanced statistical methods are needed to better understand project inflows and performance.

Increased research emphasis is being undertaken to develop new technologies for reducing flood damages in urban areas that include both structural as well as non-structural alternatives. Urban development in the inland areas, as well as the coastal areas, requires new technologies to reduce the flood damages. Innovative methods must be developed to reduce flood damages, protect vital urban infrastructure, and restore damaged urban channels.

~~FY 2004 ACTIVITY:~~

1. The increasingly multi-purpose approach taken in Corps flood damage reduction projects, especially in urban areas, requires the inclusion of channel restoration and geomorphic assessments. Guidance and screening level tools for carrying out geomorphic assessments and guidance for hydraulic design of channel restoration projects, including siting and spacing of grade control structures, will be developed.

2. Understanding the physics of piping within existing levees is a high priority before remedial solutions to weakened levees can be designed. An empirical tool to identify potential piping locations will be developed. Physical model studies of piping mechanics will be undertaken.

3. Development of a transportable system for field use in levee inspections during normal and flood fighting operations to provide GIS/GPS capability and connectivity to a command center in a real-time mode will be finalized (Levee Inspection Tool).

3. Research and Development

b. Flood and Coastal Protection

4. Channel restoration is a significant objective of many current and proposed Corps local flood protection projects. Guidance will be developed for hydraulic design of channel restoration projects. Guidelines will be documented in technical reports, engineering manuals, and professional journals. Determination of annual

sediment yield for various configurations of urban flood damage reduction projects that include sediment control will be facilitated through the development of a rapid sediment transport assessment method.

5. Numerical models supporting flood management and habitat enhancement engineering studies utilize a variety of one- to multi-dimensional approaches. Effective use of these models requires integration of their input and output. Tools will be designed to integrate these various modeling techniques.

6. Accretion of ice on dam walls, dam gates, strut arms, and other machinery causes machinery to become inoperable. Optimization of existing and development of new deicing/anti-icing methods and materials will be pursued for application to new and rehabilitated Corps water control and navigation structures.

7. A spatially distributed snowmelt model that includes forest canopy effects and improved snowmelt algorithms will be integrated in the Corps' next generation Hydrologic Modeling System (HEC-HMS).

8. Ice and debris accumulation at navigation and flood damage reduction facilities cause significant damage to the operation and maintenance of these structures. Modules have been incorporated in Corps' hydraulic numerical models HEC-RAS and UNET to provide ice modeling capability necessary to optimize design. Discrete element computer simulation programs of ice and debris transport in rivers and in lock approaches to assist in the design of river ice management and control methods will be developed.

9. An ice jam database has been created that is available on line for use in ice jam control studies. Its rapid mapping capability facilitates emergency management activities. Initial ice formation and ice jam predictive methods have been developed and will be pursued for use in risk and uncertainty analysis and other hydraulic projects.

10. Accurate and timely prediction of flood water elevations and flood damage during floods is critical to the successful protection of lives and property along river systems and for the design of flood management plans and protection projects. Enhanced computer models will be released for analysis of flood wave passage through rivers, locks and dams, tunnels, complex hydraulic channels, structures, and for flood damage reduction.

11. Determining reservoir releases during flood events requires consideration of increasingly complex data and circumstances, such as forecasted inflow, reservoir system status, flood plain occupancy vulnerability, and reservoir/flood plain wildlife environment, to name a few. New reservoir operation algorithms will be developed that will facilitate real-time operation of existing river-reservoir systems as well as evaluate tradeoffs in operational purposes and planning of new or modified systems.

12. An apparent increase in extreme climate events, including El Nino effects, resulted in more attention to the potential for future flooding. The role of wetlands in natural flood attenuation is also of much interest. Improved flood runoff evaluation and forecasting techniques, companion computer models, and reporting/display methods will be developed that will significantly improve such analysis.

3. Research and Development

b. Flood and Coastal Protection

13. Urban flooding is a significant problem throughout the US and new guidance for reducing flood damages is necessary. Development of new innovative techniques for reducing urban flood damages will address urban-specific issues, including sheet flow, stormwater, and combined systems.

14. Integration of simple to complex models of inland, coastal, sediment, stormwater, ungaged and flashy, precipitation, frequency, real-time forecasting with GIS technology will be initiated.

15. Effects of short-term events vs. long-term erosion, the performance of aging flood control structures, and the impacts of removing/modifying existing structures on function and stability will be developed. New low-cost, environmentally friendly flood damage reduction techniques will be developed.

16. Improvements will be made to methodologies to valuate and monetize nonstructural and environmental alternative approaches to mitigate flood damages. Technologies for risk analysis will be expanded and rapid economic damage assessment technologies will be developed.

17. Guidance for geomorphic, sediment transport, stream restoration, and storm water management and the use of bioengineering techniques will be developed.

18. Design guidance for the application of expedient flood fighting technologies and post-flooding evaluations will be developed.

~~FY 2003 ACCOMPLISHMENTS:~~

1. Developed and demonstrated a new sediment transport model, “Sediment Impact Assessment Model,” to provide the capability to rapidly assess a variety of regional sediment management activities within a watershed.

2. Guidelines were developed and demonstrated for evaluating channel stability and sedimentation relative to the design and maintenance of vegetated flood control channels.

3. Laboratory testing was conducted to determine the hydraulic and sedimentation impacts of a variety of different types of grade control structures and protocols developed for predicting the sediment transport characteristics of different types of grade control structures.

4. Evaluated different classes of multidimensional hydraulic and sedimentation models to simulate sediment transport in models and assess applicability for designing hydraulic structures.

5. Developed submerged weir design guidance based on 3-D model studies.

3. Research and Development

b. Flood and Coastal Protection

6. Developed linked field laptop, GIS, GPS, and digital imagery system for use in rapid documentation of flood conditions during emergency events.

7. Updated the Ice Jam Database and made it fully accessible and searchable by the public on the WEB for use in response to emergency situations and for background information for ice jam flood control studies. Can be downloaded to Palm Pilot for greater ease of use in the field.

8. Revisions were completed to the Ice Engineering Engineer Manual chapters on nonstructural and structural ice control ice forces on structures. Technical guidance on the removal of dams in ice-affected rivers and the use of remote web cameras was published.

9. Conducted field demonstrations of lock and dam de-icing methods and developed draft engineering guidance on winter operation and maintenance of river structures. Evaluated coatings to reduce ice adhesion and electro-expulsion for deicing at locks and dams were carried out. Technical guidance on the use of coatings for ice control was published and was included in the Ice Engineering EM

10. A cell-by-cell temperature index method for use in modeling snowmelt using HEC-HMS was developed and interpolation for mountainous areas was improved. Functions were added to the graphical user interface for use in snowmelt modeling with HEC-HMS.

11. Linked the Corps Water Information Management System (CWIMS) with 2-D hydraulic modeling to provide a near-real time tool for responding to river flow conditions.

12. The discrete element model (DEM) of ice and debris was extended to include a distribution of floe sizes and long cylindrical shapes simulating debris. A preliminary integration of the DEM with a 2-D hydrodynamic model was demonstrated.

13. Completed Version 3.1 of the River Analysis System (HEC-RAS) and conducted final testing of new unsteady flow analysis for level and dam failures, pump stations, navigation dams, floodway encroachments, mixed flow regime, stable channel design, culvert gates, and sediment transport.

14. HEC-HMS was upgraded to include new reservoir features for outlets, spillways, and dam overflows and breaches.

15. The Reservoir Simulation Model was released for use in managing multi-purpose reservoir systems.

16. Developed protocols for evaluating expedient flood fighting technologies and improved guidance in the uses of sand bag temporary levee raising structures.

3. Research and Development

c. Environmental Technologies

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-2008) Program Cost	$30,000,000
Allocation Requested for FY 2004	3,900,000
Balance to Complete after FY 2004	26,100,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:

The Corps operates and maintains 25,000 miles of inland and coastal navigation waterways, 562 reservoirs (5,500,000 surface acres), 237 navigation locks, 926 harbors, 75 hydropower projects, 879 flood control projects, and thousands of acres of adjacent lands as part of its water resource mission. Wide-ranging proactive environmental compliance, management, and restoration efforts are an integral part of Corps water resource management. Moreover, recent U.S. figures have estimated $16 billion per year in damages caused by point- and nonpoint-source pollution and up to 1 billion tons per year of eroded soils and industrial and agricultural contaminants that are deposited in the Nation's waterways. These impacts are severely affecting multiple project uses, impeding navigation, restoration, and negatively affecting human and ecological health. An integral part of the Corps' mission is to ensure that project planning, construction, operation, and maintenance activities solve critical environmental problems and incorporate full environmental compliance, management, and restoration considerations, while ensuring economic viability and societal acceptance. The Environmental Technologies research area addresses the highest priority technical problems with state-of-science, cost-effective, time-saving technologies for managing and restoring natural resources at Corps projects including: the development of system-wide modeling, assessment, and restoration technologies; ecosystem management and restoration; tools for riparian areas; techniques and standards for wetlands restoration and creation; habitat management techniques for biota including threatened and endangered species; and assessment and management of water quality problems. This program provides scientifically proven and demonstrated economical solutions to the Corps' highest priority environmental problems, reduces unnecessary regulatory burdens, and provides environmental benefits, while maintaining a very high return on taxpayer investment.

FY 2004 ACTIVITY:

1. Develop Grided Surface/Subsurface Hydrologic Analysis (GSSHA) code with surface nutrient/material fate and transport; publish updated user manual for modified GSSHA model and develop user-friendly interfaces.

2. Develop generic visualization routines for hydrodynamic and water quality models.

3. Continue interagency collaboration on watershed level studies and system-wide assessment technologies.

3. Research and Development

c. Environmental Technologies

4. Assemble compendium of existing tools for system-wide watershed and ecological assessments and develop prototype applications.

5. Develop conceptual models linking physical and chemical processes to biological processes.

6. Develop environmental and engineering tools to improve riparian ecosystem restoration efforts.

7. Quantify impacts/benefits of specific hydraulic features (natural and man-made) on fish passage and movement.

8. Define biological/hydrological relationships in floodplain habitats to assess ecosystem response to water resources management.

9. Complete and publish an Engineer Manual for design of Abandoned Mine Lands (AML) restoration projects.

~~FY 2003 ACCOMPLISHMENTS:~~

1. Developed algorithms for watershed and water quality models.

2. Compiled and synthesized information on watershed processes.

3. Compiled an assessment of watershed models.

4. Developed conceptual models for large river nutrient transport.

5. Developed design guidance for hydrologic model connections to the CDF.

6. Developed visualization routines for output from watershed and water quality models.

7. Compiled resource management tools, developed a catalog and annotated bibliography.

8. Constructed linkage of HSPF (watershed model) to CE-QUAL W2 (water quality model).

9. Developed prototype applications for system-wide watershed analysis.

10. Developed web-based access to tools and watershed assessment approaches.

11. Developed handbook of tools and techniques for ecological restoration and management of urban streams.

3. Research and Development

c. Environmental Technologies

12. Developed guidance document for reestablishing riparian hardwood ecosystems in arid and semi arid regions.

13. Developed design guidance/models for constructing small floodplain pools as habitat for fishes and amphibians.

14. Developed community index templates for assessing terrestrial, coastal, and aquatic ecosystem functions.

15. Completed review of approaches to coastal wetland restoration in Northern Gulf of Mexico.

10. Published hydrogeomorphic (HGM) functional assessment guidebooks for: Tidal Fringe Wetlands of Gulf of Mexico; Intermontaine Prairie Potholes of N Rocky Mountains; Wet Pine Flats of Gulf Coast Plains; Flats Wetlands of Everglades; Riverine Wetlands of W. Tenn.; Riverline Floodplains of N. Rocky Mts.; & Riverine Wetlands of Peninsular Florida.

17. Conducted third in a series of workshops designed to obtain field input for strategic development of Abandoned Mine Lands research program.

18. Demonstrated an innovative toxicological challenge to assess risk of PCB bioaccumulation in freshwater and marine organisms.

19. Demonstrated the relationship of genosensors to population level effects on benthic organisms.

20. Demonstrated role of thermal release energy on hydrophobic organic compounds in contaminated sediments.

21. Quantified relationships between sediment extracts and toxic response in bioassays.

22. Demonstrated genetic approaches to determine the origin of microbial pathogens in contaminated sediments.

23. Demonstrated the practicability of use of aquatic animal digestive fluid to extract toxic compounds from contaminated sediments.

3. Research and Development

d. Infrastructure Engineering

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-2008) Program Cost	$28,000,000
Allocation Requested for FY 2004	3,100,000
Balance to Complete After 2004	24,900,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:

The Corps is responsible for 879 flood control projects, 442 lakes and reservoirs, and maintains 8,500 miles of levees. The Corps operates 235 navigation locks, 73 hydropower projects, and maintains 400 miles of coastal structures. The U.S. Marine Transportation System consists of over 300 ports, 1,000 harbor channels, and 25,000 miles of navigation channels, and is an integral part of both the U.S. economy and national security system. Most of the Corps' water resources infrastructure is nearing or surpassing its design life. Demands on the services provided by these facilities are increasing, and the condition of the infrastructure is deteriorating. Furthermore, more than half of this aging infrastructure was built before certain hazards, such as seismic and more recently terrorist loads, were recognized and design implications were understood. These are unique facilities whose failure would result in severe loss of life and have significant economic impacts.

The Nation must have a sustainable water resources infrastructure fully capable of supporting national requirements. Ensuring expected performance levels requires innovative technologies to extend the useful life of these facilities, reduce life-cycle costs, address hazards and risks in a well engineered and balanced fashion, and minimize rebuilding or replacement, using ecologically low-impact procedures and environmentally responsible materials. The Infrastructure Engineering research area provides immediate and long-term solutions for these problems. The enabling technologies of structural and geotechnical engineering design, geological and earthquake engineering, materials science, and structural risk analysis are developed in this Infrastructure Engineering research area. These technologies provide crosscutting support to all Corps' Civil Works business programs.

APPROPRIATION TITLE: General Investigations, FY 2004

3. Research and Development

   d. Infrastructure Engineering

~~FY 2004 ACTIVITY:~~

1. Continue guidance and software development for well-calibrated engineering risk analysis for individual dams, groups of dams, and dam safety investments and further development and enhancement of procedures for performing portfolio risk assessments.
2. Reports and/or software for seepage & piping parameters, unlined spillway erosion, and a simplified approach for uncertainty of dam stability caused by hydraulic loading and uplift pressures in foundation rock beneath dams will be provided.
3. Continue guidance and software development for safe and durable, but also sustainable, infrastructure repair and construction materials, design, construction and application procedures. Continue to develop adequate materials specifications for the improvement of concrete workability and testing methods and investigate causes of adverse material interactions.
4. Improve analytical methods for analysis of deteriorated concrete. Continue collection of data related to durability performance of concrete under natural weathering cycles, including updating web-accessible database.
5. Initiate laboratory-testing program for the evaluation of rapid-repair materials for damaged concrete.
6. Develop an expert system for advanced materials for locks, dams, and hydroelectric machinery components.
7. Develop automated procedures for fracture fatigue calculations for steel hydraulic structures. Complete assessment criteria and modeling capabilities for fitness for purpose analysis of hydraulic steel structures. Assess fatigue performance of steel connections of miter gate global model; develop lift gate global model.
8. Develop guidelines for high-performance tainter-gate monitoring systems. Develop mathematical models to predict tension and degree of corrosion on trunnion bearing anchorages for tainter gates.
9. Develop standardized testing and rating methodology for greaseless bushings.
10. Evaluate coatings for Corps of Engineers structures, and expand web site to demonstrate their performance.
11. Examine alternative construction procedures for positive water seepage cut-offs that have less damage to the riverine ecosystem.
12. Improve ground motion guidance from structural and geotechnical point of view, and develop and apply a PC-based earthquake ground motion analysis system for seismic rehabilitation problems. Develop and validate a modified response spectrum based approach to provide more accurate values of the seismic response of intake/outlet structures. Complete seismic physical modeling of generic zoned embankment dams, and numerical modeling of generic homogeneous dams and zoned dams; develop guidance on tolerable limits of damage and remediation alternatives for both types of embankment dams. Develop survey and create database of seismic retrofit of concrete dams case histories. Initiate experimental evaluation of the performance of selected retrofit solutions for seismically deficient intake-outlet systems.

3. Research and Development

d. Infrastructure Engineering

13. Recommend updates related to load factors in design guidelines of reinforced concrete hydraulic structures.
14. Integration of hardware for application of high frequency acoustical imaging systems (HFAIS) for underwater inspections of structures; perform initial software development for integration of images and noise reduction.
15. Expand the computer-aided structural engineering (CASE) website for effective technology transfer.

~~FY 2003 ACCOMPLISHMENTS~~:

1. Developed preliminary guidance for well-calibrated engineering risk analysis for individual dams, groups of dams, and dam safety investments. Reinvestigated and extended portfolio demonstration using Huntington District dams. Initiated investigation of toolbox procedures for performing portfolio risk assessments.
2. Validated simplified approach technology for assessing uncertainty of dam stability caused by uplift pressures in foundation rock beneath dams. Developed computer tools with enhanced capabilities for erosion stability assessment of unlined rock-surface spillways/ channels. Completed detailed study of Corps seepage and piping case histories for empirical estimates on seepage and piping recurrences. Validated probabilistic unlined spillway model for erosion damage.
3. Developed simplified, calibrated procedure to assess the annualized probability of extreme floods including information for the eastern U.S.
4. Developed guidance for safe and durable, but also sustainable, infrastructure repair and construction materials, design, construction and application procedures. Developed materials specifications for the improvement of concrete workability and testing methods for problem field cases. Investigated causes of adverse material interactions. Investigated the use of lithium as a remedial treatment for alkali-silica reaction. Provided findings as technical guidance.
5. Reviewed available techniques and methodologies applicable to the strengthening of damaged concrete in hydraulic structures for effective temporary repairs as well as for rapid execution of permanent repairs to extend their service life. Collected and analyzed data related to durability of concrete beams and updated web-accessible database and gained knowledge on how exposed materials perform under natural weathering cycles.
6. Evaluated and compared load strength design factors used in design guidelines for reinforced concrete hydraulic structures (EM1110-2-2104) with current design building codes (ACI 318-02) using typical design cases. Developed a sensitivity analysis study of NISA (Nonlinear Incremental Structural Analysis) material parameters for preliminary design.
7. Evaluated coatings applied to Corps of Engineers structures, and expanded WEB site to demonstrate their performance. Reviewed guide specifications included in CEGS-09965 and developed criteria to incorporate industry specifications in the application of moisture-cure zinc primers. Reviewed guide specifications included in CEGS-009971 and developed criteria to establish limitations on recycling practices and on the application of adequate coatings whenever steel abrasives are used for fresh water hydraulic structures.

3. Research and Development

   d. Infrastructure Engineering

8. Developed guidelines for high-performance bushing materials for tainter gates. Tested methodology for greaseless bushings to evaluate coefficients of friction and wear, both wet and dry, and for swell (or shrinkage) in water and to evaluate long-term creep. Provided a bearing rating system for use by the hydropower industry. Developed test methodology for greaseless bushings suitable for ASTM standard adoption.
9. Developed finite-element models of typical connections on hydraulic steel structures to quantify stress concentration at girder downstream flange connections. Developed preliminary criteria and procedures on fitness for purpose analysis of hydraulic steel structures.
10. Developed a nondestructive evaluation method for the condition assessment of lock and dam tainter gate anchors to measure the tensile stress in the tendons and to determine the degree of corrosion that is present. Developed ASTM standards for acoustic interrogation of embedded steel for the determination of tension and degree of corrosion on steel members surrounded by a concrete matrix with only a single exposed end.
11. Developed tools to assure life-safety from earthquake damage to Corps' dams and reservoir control structures. Assessed existing and potential retrofit solutions for intake/outlet structures, which included the development of evaluation procedures for comparison of pre- vs. post-retrofit performance alternatives. Improved evaluation procedures for the assessment of the global (sliding and overturning) stability of concrete gravity dams.
12. Developed technical guidelines for structural modifications associated with common rehabilitation solutions (post-tensioning, thrust blocks, section thickening, RCC buttressing, etc.). Developed guidance for performance evaluation of modified structures and assessment of relative technical merits of alternative remediation solutions. Developed guidance for evaluation, assessment and implementation of retrofit alternatives for intake/outlet structures.
13. Developed guidance related to type, amount, and location of damage of earth embankments on weak foundations, including most appropriate remediation alternatives for various dam scenarios.
14. Developed engineering procedures and computer tools for seismic sliding analysis of earth-retaining structures with permanent displacements. Developed simplified procedures for seismic response spectra based soil-structure interaction analysis of rock-founded massive concrete lock retaining walls with seismically induced rocking. Developed engineering procedures and computer tools for seismic rotation analysis of earth-retaining structures with pool and partially submerged backfill. Developed guidance on seismic rehabilitation procedures for the backfill, foundation and structural elements of earth-retaining structures.
15. Developed a field deployable, prototype acoustic imaging system that provides real-time, high-resolution 3D acoustical images of underwater objects that can be transferred to 3D software COTS programs.
16. Modified coding and added features that extend the applicability of CASE (Computer Aided Structural Engineering) tools and documents by leveraging existing common delivery framework functionality and improve product transfer.

APPROPRIATION TITLE: General Investigations, FY 2004

3. Research and Development

e. Geospatial Technology

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-2008) Program Cost	$20,000,000
Allocation Requested for FY 2004	2,700,000
Balance to Complete after FY 2004	17,300,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:

The Geospatial Technologies Research Area comprises Survey and Mapping, Remote Sensing, Geographic Information Systems (GIS), and a Common Delivery Framework (CDF). This area focuses on collection, management, analysis, and exploitation techniques for information tied to the earth's surface and subsurface (geospatial data). Typical project-derived digital data come from various sources, including bathymetric and topographic surveys, terrain digital elevation information, dredge and fill cuts, in-situ disposal sites, sub-bottom compositions, soil types, wetlands, land cover, endangered species and their habitat, stream and tide gages, cross sections, training structures, levees, dam deformation, HTRW sites, permits, piezometers, archeological sites, Corps projects, relief wells, damage from disasters, recovery missions, and many other sources. Data may be collected and analyzed for projects at specific sites or as part of systems: from subbasins to large river systems, from individual beaches to large coastal segments. These data support decision makers in all Corps' business program areas: navigation, flood and coastal storm damage reduction, hydropower, regulatory, environmental, emergency management, recreation, water supply, and work for others. Accurate and reliable geospatial data are required by each business program for the effective planning, design, construction, operation, maintenance, and rehabilitation of projects.

Annual expenditures for collection, analysis, and management of these data average almost $200M, thus significant savings from more effective and efficient management of civil works projects will be realized through the use of new data collection and management technologies, data analysis, and data exploitation. To reduce costs for developing and applying science and engineering technologies, a new framework approach to managing software guidance, capabilities and resources for model/application developers in a consistent, corporate context is being developed. Examples of cost savings already realized include: (1) savings in the tens of millions of dollars annually through improved understanding of snowmelt hydrology, (2) $10M annually with Corps-developed differential GPS, enabling integration of differential techniques and differential networks throughout the Corps, (3) disaster recovery savings of over $3.6M through the innovative use of spatial data analysis in planning for cleanup after Hurricanes Andrew and Georges, and (4) savings of over $66K when GIS was used to manage the Beaver Lake Shoreline (Little Rock District). Other savings noted include more rapid data retrieval and analysis with production improvement approaching 2:1; more accurate (up-to-date) data and maps; ability to conduct systemic analysis as for the Channel Improvement Project (1300 miles of the Mississippi River); automated river chart production with improved cartographic appearance, accuracy, completeness, and currency; improved data retention and longer data life with reduced re-collection costs; increased data sharing with lower collection costs; increased software reuse; improved network infrastructure planning; and improved, more defensible decision making.

3. Research and Development

e. Geospatial Technology

APPROPRIATION TITLE: General Investigations, FY 2004

~~FY 2004 ACTIVITY:~~

1. Delivery of an improved final version of the Corps' coordinate conversion software that is FGDC compliant and has integrated positional accuracy reporting.

2. Publish final report on alternative approaches to the creation of Digital Elevation Models (DEMs) appropriate for inundation analysis.

3. Develop and distribute linked software tools for watershed scale decision support and improved watershed management linking the OMBIL O and M business software with GIS and statistical data for modeling, managing, sustainment, and restoration of watersheds.

4. Demonstrate a sample Common Delivery Framework service-based application linked with commercial data and analysis software services.

5. Develop techniques to more accurately and efficiently merge topographic and hydrographic data into integrated digital elevation models.

6. Develop and document procedures to automatically assimilate snow water equivalent data from remote sensing into spatially distributed models of snow cover for improved water management decision-making.

7. Evaluate cost effectiveness of extended range Nationwide Differential GPS for improved surveying data.

8. Develop a GUI to facilitate display of geographical data and model results necessary for watershed scale projects.

9. Develop algorithms and user manuals to improve floodplain delineation for less expensive and more accurate flood inundation mapping.

10. Create a very high-resolution database and validate linked dynamic simulation models for collaborative watershed management policy evaluation.

11. Develop and document algorithms using multitemporal remotely sensed data for improved, and more cost-effective classification of plant communities. Publish a prototype technical handbook.

12. Initiate evaluation of improvements to GPS satellites for improved survey and mapping accuracy.

13. Develop a decision support system enabling analysis of social, ecological, hydrologic, and agronomic activities on large water systems simulating land use change and its effects on hydrology and water quality management.

APPROPRIATION TITLE: General Investigations, FY 2004

3. Research and Development

e. Geospatial Technology

14. Develop lower cost methods for more accurately delineating features of dry wash floodplains and playas using laser altimetry to reduce damage from flooding and improve wetland delineation.

15. Initiate efforts to determine best carrier phase transmission methods to improve 3-D positional accuracy of GPS data.

~~FY 2003 ACCOMPLISHMENTS:~~

1. Published final report on alternative approaches to serving geospatial data over the Internet and Intranets.

2. Developed initial information and technology framework for common approaches to the delivery of science and engineering technology (applications, models, and groups of related models) to Corps districts and divisions.

3. Investigated and documented existing Quality Assurance software packages for survey and mapping.

4. Synthesized findings of Enterprise GIS (EGIS) approaches and provided recommendations of best practices for implementation of EGIS in the Corps and demonstrated a working implementation at the Corps' Mississippi Valley Division.

5. Developed improved approaches for the collection of ground truth and methods to fuse LIDAR and multispectral image data for more effective wetlands delineation and mapping.

6. Demonstrated integration of Corps geospatial data and systems with commercial geospatial data services improving data quality and data sharing with the public.

7. Developed object-oriented data modeling tools to accurately interpolate meteorological parameters for use by hydrological models. Work included temperature, orographic, elevation, and other effects.

8. Initiated development of a rule-based watershed management and assessment tool providing decision makers support in integrating geospatial, modeled, and other pertinent information, comparison of alternatives, and evaluation of outcomes from selected management options.

9. Demonstrated the use of the Common Delivery Framework in improving the interoperability of Science and Technology software to reduce development time and cost and to improve product quality.

10. Improved watershed modeling capability through delivery of geospatially enabled hydrologic modeling system tools.

3. Research and Development

e. Geospatial Technology

11. Developed an automated approach to the identification of river ice and ice fronts to mitigate the effects of ice jam flooding.

12. Developed a web accessible library of software resources and technical guidance that comprise the “raw materials” that USACE developers, contractors, and partners will use to develop specific science and engineering applications.

13. Developed a web-based GIS application to provide warning of potential levee overtopping and provided linkage with the Corps Water Management System modeling environment.

14. Evaluated and reported on best sensors for emergency operations according to mission and disaster type.

15. Initiated development of a Corps enterprise approach enabling analysis of geospatial and statistical data necessary for modeling, managing, and restoring watersheds.

16. Evaluated costs and benefits of new 3-D laser scanning techniques to meet engineering requirements.

17. Delivered software for linkage and integration of laboratory data related to environmental analysis and restoration with commercial GIS tools.

18. Initiated installation of a National Differential GPS site to improve 3-D real time positioning accuracy.

19. Developed and demonstrated a tool to generate multi-user geodatabase schema that is interoperable with other SDSFIE-compliant data repositories.

3. Research and Development

f. Integrated Technologies for Decision Making

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2004-2008) Program Cost	$13,000,000
Allocation Requested for FY 2004	2,500,000
Balance to Complete after 2004	10,500,000
Allocation for FY 2003	TBD
Change in FY 2004 from FY 2003	TBD
Average Annual Allocation for FY 1999-2003	TBD

JUSTIFICATION:

The Integrated Technologies for Decision Making research area undertakes research and development activities leading to improved evaluation methods and decision making for Civil Works planning, engineering and operations. The area is composed of three R&D programs: Investment and Management Decision Making (formerly Decision Support Technologies), Risk Analysis for Water Resources Investments, and Navigation Economic Technologies (NETS). Both the Investment and Management Decision Making and Risk Analysis for Water Resources Investments R&D programs are continuous, but the specific focus at any given time is dictated by problems and needs resulting from changes occasioned by legislative mandates and revisions in broad Federal guidance for water resources planning and management. Corps efforts to improve project, system and program performance and reliability will be assisted through the development of new methods and analytical techniques to prioritize and support planning, design, construction, and maintenance of Corps projects. The NETS research was initiated in FY2003 and is scheduled to be completed in FY2007. NETS has a specific focus on economic methods and tools for navigation evaluation and decision making. It is designed to address specific navigation economic evaluation and modeling issues that have been raised within the Corps as well as by critics of Corps methodologies. Integrated Technologies R&D provides Corps personnel with the appropriate framework and analytical tools that are key to assessing current and future water resources problems, evaluating alternative competing solutions, and making the most informed decisions.

The Investment and Management Decision-Making research program is aimed at developing improvements to Civil Works water resources investments decision-making, project formulation capabilities, and to fulfill the need for analytical support tools for project delivery teams. Research conducted within this program is directed towards reducing study time and costs, increasing the completeness, efficiency, effectiveness and acceptability of water resources projects, and providing input for the development of consistent procedures applicable nationwide. The basic objectives of the program are to increase the knowledge and understanding of the physical, economic, social, and environmental relationships inherent in planning for the development of the Nation's water resources. Furthermore, to develop procedures for incorporating this knowledge into the planning process in a way that provides better professional, public, and governmental decisions. Tools include models, software, and technical guidance for economic and cost-effectiveness analysis, collaborative problem solving techniques, tradeoff, and multi-objective analysis to balance dissimilar values and valuing non-monetary outputs. Research outputs range from methods for facilitating local sponsor and stakeholder involvement in water resources planning to mathematical models and evaluation frameworks for formulating flood and storm damage reduction projects, navigation improvement projects, and aquatic ecosystem restoration.

APPROPRIATION TITLE: General Investigations, FY 2004

f. Integrated Technologies for Decision Making

The Risk Analysis for Water Resources Investments research program objective is to develop procedures and frameworks that will enhance the overall performance of the Corps' civil works mission. In addition, the results from the program will enhance Corps flexibility in responding to existing and future engineering challenges. Risk analysis is increasingly used to aid in decisions involving natural and man-made hazards and where information contains significant uncertainties. Quantification of the underlying risk and uncertainty leads to more informed decisions on civil works investments and management of existing infrastructures. The research and development program includes the development and application of risk analysis techniques to a variety of issues and problems faced in the Corps' water resources planning, engineering, design, and operations. The program is aimed at addressing the crosscutting nature of water resource investment and management. To this end the program is managed in a unique coordinated effort across all the functions of planning, engineering, and operations. Products from the program include technical guidance to quantify risks and associated uncertainties in the underlying contributing engineering, economic, and environmental quantities. The Risk program also develops models and software that combines these values to provide a complete assessment of engineering and economic performance in aid of decision making.

The objective of the Navigation Economic Technologies (NETS) research program is to enhance and standardize evaluation tools and methods for shallow and deep draft navigation project life-cycle analysis. The economic evaluation methods and results of analyses by the Corps of Engineers are coming under increasing scrutiny both within the Corps and from outside the agency. Each District, under the basic evaluation framework of ER 1105-2-100, has developed its own tools and methods. Often, the assumptions are buried in models that are only understood by a few technical experts. Documentation may be sketchy. This “black box” approach to analysis limits policy and technical review of the study, as well as stakeholder participation. Assumptions may represent methodological shortcuts that can lead to errors and omissions in the analysis. The continuing use of some approaches does not represent the state of the art. The NETS R&D program seeks to develop peer-reviewed procedures and tools that will be used throughout the Corps by concentrating on the following areas:

1. Expanded and improved capabilities to forecast navigation traffic in ports and on waterways
2. Improved tools and approaches to evaluate and perform calculations of transportation economic benefits and costs
3. Integration of tools and approaches for systems evaluation and management
4. Improved capabilities to integrate economic, environmental, and other factors for navigation system investment and management
5. Procedures for integrating uncertain variables within the economic evaluation of navigation
6. Extension of benefit evaluation to include congestion, air quality, and other externalities
7. Improved methods and data support for all modes of transportation of commodities from production site to ultimate consumption

~~FY 2004 ACTIVITY:~~

Investment and Management Decision Making:

The program will continue to focus on improving and modernizing the project delivery and planning process along with development and update of plan formulation and economic evaluation procedures. Specific activities will include: (a) An assessment of local sponsor needs and expectations to facilitate improved public involvement and collaboration on water projects; (b) Integration of new planning and environmental models with economic and cost effectiveness models for river basin studies with a focus on improving procedures for linking environmental outputs to human services; (c) Explore Monetary Valuation of Ecosystem Restoration project outputs; (d) Make operational advances in ecological benefits evaluation; (e) Develop criteria for formulation and

3. Research and Development

f. Integrated Technologies for Decision Making

evaluation of Multi-Purpose, Multi-Objective water resources projects; and (f) Assessment of significant process and policy changes affecting National Economic Development analysis. This will provide information, tools, and procedures to enable Corps planners to more effectively and systematically implement watershed studies, undertake more effective and efficient planning studies, and to improve partnerships, reduce conflict, and provide information to better evaluate effects of alternative plans: economic, environmental, and social.

Risk Analysis for Water Resources Investments:

The program will continue the development of tools to improve decision making across all civil works areas. Activities in the program will include**:** (a) Complete the basic approach, framework, and training materials for using risk analysis to aid decisions on aquatic ecosystem restoration investments; (b) Complete development and fielding of second generation HarborSym software tool (incorporating tide and currents) with updated applications guide and training materials for quantifying overall engineering and economic risk of deep draft navigation investments; (c) Complete and field version 2.0 of hurricane and storm damage reduction software tool to meet emergency response and planning needs including GIS linkages for data input and output visualization; (d) Complete development of first generation of generalized major rehabilitation software tool for life-cycle analysis of infrastructure rehabilitation; (e) Complete final report on using scenario analysis and probabilistic scenario analysis in decision making under uncertainty; and (f) Complete design document and proof of concept prototype model for quantifying uncertainty in dredging cost estimates

Navigation Economic Technologies (NETS):

Activities in the program will include: (a) Complete methodology development, data collection and estimation of responsiveness of demand for shipping services to changes in unit costs using the event studies method; (b) Report and applications guide documenting results of estimating demand elasticity for inland navigation transportation services; (c) Complete development of prototype spatial equilibrium model incorporating demand elasticity developed using revealed choice; (d) Compete development of prototype model evaluating navigation investment and management changes within a multi-modal transportation system with emphasis on container traffic; (e) Initiate development and data collection to estimate responsiveness of transportation services demand using stated preference and qualitative choice methods; and (f) Initiate research on methods to assess and evaluate external benefits and costs associated with water transportation.

~~FY 2003 ACCOMPLISHMENTS:~~

Investment and Management Decision-Making:

Accomplishments in the program include developing methods, data, and analytical tools to improve water resources investment decisions to include the following: (a) Developed a windows-based cost-effectiveness evaluation software tool used by Corps and other agencies to evaluate non-monetary outputs of Corps projects; (b) Developed state-of-the-art technology transfer for aquatic ecosystem restoration formulation, evaluation and procedures; (c) Reviewed stakeholder/collaborative planning techniques; (d) Reviewed tradeoff analysis, factoring in monetary and non-monetary outputs and balancing of multiple non-monetary outputs; and (e)

3. Research and Development

f. Integrated Technologies for Decision Making

Developed planning handbooks of bio-engineering features for aquatic ecosystem restoration projects. Training materials and workshops were frequent outputs of research work units.

APPROPRIATION TITLE: General Investigations, FY 2004

Risk Analysis for Water Resources Investments:

Accomplishments of the program are**:** (a) Completed development of first generation HarborSym software tool applications guide and training materials for quantifying overall engineering and economic risk of deep draft navigation investments; (b) Completed development of analytical tools for evaluating residual flood risk and communication tools to assist in decision making on flood risk-reduction measures; (c) Completed second-phase identification and quantification of uncertainties in environmental models and parameters for aquatic ecoystem restoration; (d) Completed first generation software tool to assess economic and engineering performance of hurricane and storm damage reduction alternatives; (e) Completed application of first generation of hurricane and storm damage reduction model to test location and initiated application to second location; (f) Completed draft report on using scenario analysis in decision making under uncertainty; (g) Completed design document and initiated development of risk-based benefit cost analysis for major rehabilitation: software toolkit; and (h) Completed first-generation internet-based information center for Civil Works risk analysis.

Navigation Economic Technologies (NETS):

Accomplishments of the program are**:** (a) Completed methodology development, data collection and estimation of responsiveness of demand for shipping services to changes in unit costs using the revealed choice method with application to a study; (b) Initiated conceptual development and design of an economic evaluation model based on the concept of spatial equilibrium; and (c) Initiated design and proof of concept of a software tool for comprehensively evaluating navigation investment and management changes within a multi-modal transportation system.

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2004

SUMMARY OF REMAINING ITEMS
CONSTRUCTION, GENERAL

	FY 2003 Request	FY 2004 Request	Increase (Decrease)
2. Navigation Projects			
a. Channels and Harbors			
(II) Projects Not Specifically Authorized By Congress (Sec. 107, P.L. 86-645)	To be determined	6,000,000	To be determined
(III) Mitigation of Shore Damages Attributable to Navigation Projects (Sec. 111, P.L. 90-483)	To be determined	500,000	To be determined
(IV) Dredged Material Disposal Facilities Program (sec. 101, P.L. 99-662)	To be determined	7,000,000	To be determined
c. Inland Waterways Users Board (Sec. 302, P.L. 99-662)			
(I) Board Expenses	To be determined	45,000	To be determined
(II) Corps Expenses	To be determined	185,000	To be determined
4. Shore Protection Projects			
a. Shoreline Erosion Control Development and Demonstration Program (Sec. 227, P.L. 104-303)	To be determined	6,000,000	To be determined
b. Projects Not Specifically Authorized by Congress (Sec. 103, P.L. 87-874)	To be determined	3,500,000	To be determined
5. Flood Control Projects			
a. Local Protection			
(II) Projects Not Specifically Authorized by Congress (Sec. 205, P.L. 80-858)	To be determined	20,000,000	To be determined
(III) Emergency Streambank and Shoreline Protection (Sec. 14, P.L. 79-526)	To be determined	7,000,000	To be determined
(IV) Snagging and Clearing (Sec. 208, P.L. 83-780)	To be determined	500,000	To be determined
6. Dam Safety and Seepage/Stability Correction Program	To be determined	8,000,000	To be determined

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2004

SUMMARY OF REMAINING ITEMS
CONSTRUCTION, GENERAL

	FY 2003 Request	FY 2004 Request	Increase (Decrease)
10. Improvement of the Environment			
a. Project Modifications for Improvement of the Environment (Sec. 1135, P.L. 99-662)	To be determined	14,000,000	To be determined
b. Aquatic Ecosystem Restoration (Section 206, P.L. 104-303)	To be determined	10,000,000	To be determined
12. Aquatic Plant Control Program	To be determined	3,000,000	To be determined
13. Beneficial Uses of Dredged Material (Sec. 204, P.L. 102-580, Sec.207, P.L. 102-580, Sec. 933, P.L. 99-662)	To be determined	3,000,000	To be determined
14. Employees Compensation (Payments to Department of Labor)	To be determined	19,130,000	To be determined
Total	To be determined	107,860,000	To be determined

2. Navigation Projects

a. Channels and Harbors

(II) Projects not Specifically Authorized by Congress (Section 107, PL 86-645, as amended)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$6,000,000

GENERAL: Section 107 of the River and Harbor Act of 1960 (PL 86-645), as amended, authorizes up to $35,000,000 annually for construction of navigation projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete navigation project that would be provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation cannot exceed $4,000,000 per project.

BUDGET REQUEST: The $6,000,000 requested for Fiscal Year 2004 is to continue the Section 107 program of development and construction of navigation projects at locations throughout the Nation.

(III) Mitigation of Shore Damages Attributable to Navigation Projects (Section 111, PL 90-483, as amended)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$500,000

GENERAL: Section 111 of the River and Harbor Act of 1968 (PL 90-483), as amended, authorizes the construction of projects for the prevention or mitigation of shore damages attributable to Federal navigation works. The cost of installation is cost shared in the same manner as the costs for the project causing the shore damage were shared. The cost of operation and maintenance is borne by the non-Federal sponsor. Projects first cost shall not exceed $5,000,000 without specific authorization by Congress.

BUDGET REQUEST: The $500,000 requested for Fiscal Year 2004 is to continue the Section 111 program of mitigation of shore damages attributable to Federal navigation works. The FY 2004 continuing program is funded commensurate with the regular construction program

2. Navigation Projects

a. Channels and Harbors

(IV) Dredged Material Disposal Facilities Program

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$7,000,000

GENERAL: Section 101 of the Water Resources Development Act of 1986 (WRDA 86)(Public Law 99-662) as amended by Section 201 of the Water Resources Development Act of 1996 (WRDA 96)(Public Law 104-303) established consistent cost-sharing for construction of dredged material disposal facilities associated with Federal navigation projects, including disposal facilities for Federal project maintenance. The costs of constructing land-based and aquatic dredged material disposal facilities associated with the construction, operation, and maintenance of all Federal navigation harbors and inland harbors shall be considered costs of constructing a general navigation feature of the project and shall be shared in accordance with the procedures set forth in section 101(a) of WRDA 86.

BUDGET REQUEST: The $7,000,000 requested for Fiscal Year 2004 will be used for the Federal share of construction of applicable dredged material disposal facilities required for maintenance of existing projects, reimbursement of non-Federal sponsors for dredged material disposal facilities constructed by them in advance of Federal appropriations for such purpose, or fee payments to private entities for the use of privately owned dredged material disposal facilities if such a facility is the least cost alternative to dispose of dredged material. All costs for dredged material disposal facilities associated with project construction and maintenance will be reimbursed from the Harbor Maintenance Trust Fund.

2. Navigation Projects

c. Inland Waterways Users Board

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$230,000

The $230,000 requested for Fiscal Year 2004 is to support, operations and expenses of the Inland Waterways Users Board, established by Section 302 of the Water Resources Development Act of 1986, (PL 99-662) and pursuant to the Board's charter, approved by the Secretary of the Army on March 3, 1987. The Board is an advisory committee subject to the requirements of the Federal Advisory Committee Act (PL 92-463).

(1) Funds in the amount of $45,000 are requested to meet the estimated expenses of the eleven member Board for its travel, meeting, and other needs to meet the requirements of the Charter.

(2) Funds in the amount of $185,000 are requested for Corps of Engineers expenses related to its responsibilities as an advisory committee sponsor. The Director of Civil Works has been designated Executive Director to the Board, and he has designated staff members to provide continuing Board support. Corps expenses will include personnel costs for administrative Board meeting support, including staff travel, clerical, printing, and related materials.

4. Shore Protection Projects

a. Shoreline Erosion Control Development and Demonstration Program (Section 227, PL 104-303)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$6,000,000

GENERAL. Section 227 of WRDA 96 authorized $21,000,000 for the Corps to conduct a Shoreline Erosion Control Development and Demonstration Program in coordination with state and local governments, academia, the private sector, and the Department of Agriculture, for the purpose of developing innovative techniques and technologies for controlling shoreline erosion, and demonstrate those innovations, and others that may exist within the private sector. To date, $6,550,000 of General Investigations funds have been used to develop specific program goals, establish criteria for selecting technologies and techniques to be tested, select sites for testing, and initiate construction of the first demonstration site at Cape May Point, New Jersey. Other demonstration projects are planned for sites in Texas, Michigan, Florida, California, Ohio, New York, and South Carolina. The techniques developed under this program are expected to yield up to $150,000,000 of savings in future budgets by reducing erosion and/or lengthening the time between renourishments for our existing shore protection/beach projects. The program is scheduled to complete in September 2005.

BUDGET REQUEST: The $6,000,000 requested for Fiscal Year 2004 will be used to plan, design, construct and monitor projects to demonstrate and evaluate these new shoreline protection technologies.

b. Projects Not Specifically Authorized by Congress (Section 103, PL 87-874, as amended)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$3,500,000

GENERAL: Section 103 of the River and Harbor Act of 1962 (PL 87-874), as amended, authorizes up to $30,000,000 annually for construction of shore restoration and protection projects where not already specifically authorized by Congress. Projects under this special authority are formulated to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation is limited to $3,000,000 per project.

BUDGET REQUEST: The $3,500,000 requested for Fiscal Year 2004 is to continue the Section 103 program of development and construction of hurricane and storm damage protection measures along the Nation's shorelines.

5. Flood Control Projects

a. Local Protection

(II) Projects Not Specifically Authorized by Congress (Section 205, PL 80-858, as amended)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$20,000,000

GENERAL: Section 205 of the Flood Control Act of 1948 (PL 80-858), as amended, authorizes up to $40,000,000 annually for construction of flood control projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation is limited to $7,000,000 per project.

BUDGET REQUEST: The $20,000,000 requested for Fiscal Year 2004 is to continue the Section 205 program of development and construction of flood damage prevention projects at locations throughout the Nation.

(III) Emergency Streambank and Shoreline Protection (Section 14, PL 79-526, as amended)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$7,000,000

GENERAL: Section 14 of the Flood Control Act of 1946 (PL 79-526), as amended, authorizes up to $15,000,000 annually for the construction of emergency bank protection works to prevent flood damages to highways, bridge approaches, public works, churches, hospitals, schools, and other non-profit public services. Each project selected must be economically justified and complete within itself. Federal participation under this authority is limited to a cost of not more than $1,000,000 at any single locality.

BUDGET REQUEST: The $7,000,000 requested for Fiscal Year 2004 is to continue the Section 14 program of emergency bank protection construction to prevent flood damages to highways, bridge approaches, and essential public facilities at locations throughout the Nation.

5. Flood Control Projects

a. Local Protection

(IV) Snagging and Clearing (Section 208, PL 83-780, as amended)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$500,000

GENERAL: Section 208 of the Flood Control Act of 1954 (PL 83-780), as amended, authorizes up to $7,500,000 annually for removing accumulated snags and other debris, and clearing and straightening of the channels in navigable streams and tributaries thereof, when in the opinion of the Chief of Engineers such work is advisable in the interest of flood control. Federal cost participation under this authority is limited to a cost of not more than $500,000 for any single tributary. Each project selected must be economically justified and complete-within-itself.

BUDGET REQUEST: The $500,000 requested for Fiscal Year 2004 is to continue the Section 208 program of channel clearing in the interest of flood control at locations throughout the Nation.

6. Dam Safety and Seepage/Stability Correction Program

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$8,000,000

GENERAL: The Dam Safety and Seepage/Stability Correction Program provides for modification of completed Corps of Engineers dam projects. There are over 700 dam projects under Corps jurisdiction. While no Corps dams are in imminent danger of failure, some may have a higher dam-safety risk than originally anticipated based on new data or the likelihood of extremely large floods and seismic events. Seepage problems at USACE dams are usually related to increased reservoir levels above the previous pool of record at a project. Static instability generally involves movement that starts at a slow rate and could result in massive displacement of large volumes of material if not corrected. Seepage/stability correction projects are classified as major rehabilitations. Dam modification work is proceeding under existing authorities on projects where cost-effective risk reduction measures have been identified and approved.

BUDGET REQUEST: The $8,000,000 requested for Fiscal Year 2004 will be used to initiate Dam Safety and Seepage/Stability projects which may be approved during FY 2004 as a result of studies now underway.

10. Improvement of the Environment

a. Project Modifications for Improvement of the Environment (Section 1135, PL 99-662, as amended)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$14,000,000

GENERAL: Section 1135 of the Water Resources Development Act of 1986 (PL 99-662), as amended authorizes review of Corps water resources projects to determine the need for structural or operational modifications for the purpose of improving the quality or the environment in the public interest; to determine if the operation of such projects has contributed to the degradation of the quality of the environment; and to carry out a program of such modifications that are feasible and consistent with authorized project purposes. Up to $25,000,000 may be appropriated annually. The non-Federal share of the cost of any modifications will be 25 percent. Modifications with estimated Federal costs over $5,000,000 require specific Congressional authorization.

BUDGET REQUEST: The $14,000,000 requested for Fiscal Year 2004 is to continue the Section 1135 program of project modifications in the interest of improving the quality of the environment.

b. Aquatic Ecosystem Restoration (Section 206, P.L. 104-303)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$10,000,000

GENERAL: Section 206 of the Water Resources Development Act of 1996 authorizes up to $25,000,000 annually to carry out aquatic ecosystem restoration projects that will improve the quality of the environment, are in the public interest and are cost-effective. Non-Federal interests shall provide 35 percent of the cost of construction including provision of all lands, easements, rights-of-way, and necessary relocations. Non-Federal interests shall pay 100 percent of the cost of operation, maintenance, replacement and rehabilitation. Not more than $5,000,000 in Federal funds may be allocated to a project at a single locality.

BUDGET REQUEST: The $10,000,000 requested for Fiscal Year 2004 is to continue the Section 206 program of aquatic habitat restoration.

12. Aquatic Plant Control (APC) Program

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$3,000,000

GENERAL: Aquatic plant control research is the nation's only Federally authorized research program for technology which is necessary to manage non-indigenous aquatic plant species. The objective of the research is to develop cost effective, environmentally compatible aquatic plant control technology, including biological, chemical, and integrated control methods. Research involving management strategies and applications and ecological factors are also being conducted. The control technology, management strategies and ecological understanding resulting from APC research forms the national base in the APC area, and is applied not only to control aquatic plant infestations in public waters nationwide, but is also essential to cost effective, environmentally compatible, aquatic plant control for the operation and maintenance of Corps projects. Nearly 3.0 million acres nationwide are now infested with problem aquatic plants. The Corps manages over 5.6 million surface acres of water at its reservoir projects alone, with significant additional acreage as part of navigation projects. Eurasian watermilfoil, hydrilla, alligatorweed, and other exotic species continue to expand from local infestations, many of which are interfering with navigation, flood control, hydropower production water quality and aquatic habitat. New colonies of objectionable aquatic plants continue to be found, such as hydrilla in the southeast and Eurasian watermilfoil in the Midwest. The direct application of technologies developed by research under the Aquatic Plant Control Program have resulted in the reduction of waterhycinth in the Gulf Coast States and California of over 3 million acres. In Louisiana alone, water hyacinth has been reduced from 1.5 million acres to about 200,000 acres. In addition, technology developed by the APC research program has resulted in a nationwide reduction of alligatorweed. Estimated annual savings produced by application of these APC research technologies are between $15,000,000 and $20,000,000 over the costs of conventional methods. The Aquatic Plant Control Program is authorized by Section 104 of the River and Harbor Act of 1958, (P.L. 85-500), as amended by Section 104 of the River and Harbor Act of 1962, (P.L. 87-874), Section 302 of the River and Harbor Act of 1965 (P.L. 89-298), and Sections 103, 105, and 941 of the Water Resources Development Act of 1986 (P.L. 99-662), Section 225 of the Water Resource Development Act of 1996 and Section 205 of the Water Resource Development Act of 1999 (P.L. 106-53). The APC program has an annual expenditure ceiling of $15,000,000.

BUDGET REQUEST: The $3,000,000 requested for Fiscal Year 2004 will be used for continued research efforts for aquatic plant control technologies to support the operation and maintenance of Corps projects. Efforts will focus on control methods for submersed aquatic plants (i.e. Eurasian watermilfoil, and hydrilla), with emphasis on biological control agents, chemicals, integrated control methods, management strategies and ecological factors that impact non-indigenous aquatic plant species . Research efforts are fully coordinated with other Federal, state, and local agencies to prevent duplication of effort and to ensure that research under this program is consistent with, and complementary to, the research efforts of others. The cost of research dealing with problems/outputs of regional or nationwide importance is 100 percent Federal.

13. Beneficial Uses of Dredged Material (Section 204, P.L. 102-580, as amended)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$3,000,000

GENERAL: Section 204 of the Water Resources Development Act of 1992 (Public Law 102-580) authorizes the Secretary of the Army to carry out projects for the protection, restoration, and creation of aquatic and ecologically related habitats, including wetlands, in connection with dredging for construction, operation, or maintenance by the Secretary of an authorized navigation project. Annual appropriations not to exceed $15,000,000 are authorized. Non-Federal interests are required to share in a minimum of 25 percent of the cost of each project including the provision of all required lands, easements, rights-of-way and relocations with the value of these contributions included in the 25 percent non-Federal share of the project and to pay 100 percent of the operation, maintenance, and replacement and rehabilitation cost of the wetland or other aquatic habitat area. The costs of the habitat protection, restoration or creation project are limited to costs which are in excess of those costs necessary to carry out the dredging for the authorized navigation project.

BUDGET REQUEST: The $3,000,000 requested for Fiscal Year 2004 is to continue a cost shared program for the protection, restoration and creation of aquatic and ecologically related habitats, including wetlands.

14. Employees Compensation (Payments to the Department of Labor)

Allocation FY 2003	To be determined	Tentative Allocation FY 2004	$19,130,000

GENERAL: Public Law 94-273, approved April 21, 1976, 5 USC 8147b, provides that each agency shall include in its annual budget estimates a request for an appropriation equal to costs previously paid from the Employees Compensation Fund on account of injury or death of employees or persons under the agency's jurisdiction.

BUDGET REQUEST: The $19,130,000 requested for Fiscal Year 2004 represents the total costs of benefits and other payments made from the Employees Compensation Fund during the period July 1, 1999, through June 30, 2000, due to injury or death of persons under the jurisdiction of the Corps of Engineers civil functions and also includes $1,100,000 for the investigation of fraudulent claims for workers' compensation benefits.

Project Name	FY 2003 Appropriation	FY 2004 Program	03-04 Increase (Decrease)
Aquatic Nuisance Control Research	725,000	725,000	0
Automated Budget System (ABS)	285,000	285,000	0
Coastal Inlet Research Program	2,750,000	2,750,000	0
Cultural Resources (NAGPRA/Curation)	1,545,000	1,545,000	0
Dredge Wheeler Ready Reserve	8,000,000	8,000,000	0
Dredging Data And Lock Performance Monitor System	1,180,000	1,180,000	0
Dredging Operations And Environmental Research (DOER)	6,755,000	6,755,000	0
Dredging Operations Technical Support Program	1,545,000	1,545,000	0
Earthquake Hazards Reduction Program	300,000	300,000	0
Facility Protection	64,000,000	13,000,000	(51,000,000)
Great Lakes Sediment Transport Models	1,000,000	1,000,000	0
Harbor Maintenance Fee Data Collection	675,000	675,000	0
Inland Waterway Navigation Charts	4,120,000	4,120,000	0
Long Term Option Assessment For Low Use Navigation	0	1,000,000	1,000,000
Monitoring Of Completed Navigation Projects	1,750,000	1,750,000	0
National Dam Safety Program	45,000	45,000	0
National Dam Security Program	30,000	30,000	0
National Emergency Preparedness Program (NEPP)	4,120,000	6,000,000	1,880,000
National Lewis And Clark Commemoration Coordinator	310,000	310,000	0
Performance Based Budgeting Support Program	815,000	815,000	0
Protect, Clear And Straighten Channels (Sec. 3)	50,000	50,000	0
Recreation Management Support Program (RMSP)	1,545,000	1,545,000	0
Regional Sediment Mngt Demonstration Program	1,545,000	1,545,000	0
Reliability Models Program For Major Rehab.	675,000	675,000	0
Removal Of Sunken Vessels	500,000	500,000	0
Water Operations Technical Support (WOTS)	725,000	725,000	0
Waterborne Commerce Statistics	4,745,000	4,745,000	0
Total Remaining Items	**109,735,000**	**61,615,000**	(48,120,000)

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Aquatic Nuisance Control Research

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$850,000
Allocation Requested for FY 2003	725,000
Allocation Requested for FY 2004	**725,000**
Increase of FY 2004 over FY 2003	0

AUTHORIZATION: The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (PL 101-646).

JUSTIFICATION: The Aquatic Nuisance Species Research Program (ANSRP) is an expansion of the Zebra Mussel Research Program (ZMRP). This expanded program will address all invasive species except aquatic plants. All invasive species cost the public over $137 billion annually. The Corps is responsible for the construction, operation, and maintenance of navigable waters and the resources associated with them. Zebra mussels alone cost the public over $1B annually. The zebra mussel (Dreissena polymorpha), first reported in the United States in 1988, was accidentally introduced from Northern Europe via ballast water from ocean-going vessels. It is estimated that over 100 nuisance species are introduced into U.S. waters annually which can impact facility operations and threaten valued natural resources. Methods of prevention and more effective, inexpensive methods of control of invasive species must be developed to prevent impacts to public facilities and protect valuable natural resources.

The ZMRP was the only Federally funded R&D program directed at control of zebra mussels and their effects on public facilities. The program is authorized by the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (PL 101-646). Research efforts have been expanded under the ANSRP to address all invasive aquatic species that impact the nations' waterways infrastructure and associated resources. Methods for prevention, control, and restoration of natural resources will be developed. Prevention methodology focusing on dispersal barrier technology will be investigated. The development of strategies to apply control methods involves engineering design, operations, and maintenance of facilities and structures. Control strategies are being developed for (a) navigation structures; (b) hydropower and other utilities; (c) vessels and dredges; and (d) water treatment, irrigation, and other water control structures. Methods to reduce invasive species impacts to threatened and endangered species and restore natural habitat will be investigated. Due to the introduction of the Northern Snakehead Fish and West Nile Virus the Corps has experienced a significant increase in the number of field assistance requests at our operating projects. Numerous dredged material disposal areas in the Atlantic, Gulf coast and Great Lakes region have mosquito abatement programs. Due to the introduction of the West Nile Virus local communities want greater assurances that mosquito populations at our disposal sites are controlled to the maximum extent practicable. Following introduction of the Northern Snakehead Fish a number of Corps reservoir projects have had to take interdiction measures to prevent their introduction.

PROPOSED ACTIVIITES FOR FY 2004:

1. Biofouling research efforts will continue to examine a number of different technologies other than pulse power to eradicate zebra mussels from structures. Also, research on new coatings will continue to evaluate their ability to stop the settlement of zebra mussels and other invasive species on various substrate types.

2. Current ballast water regulations enforced by the U.S. Coast Guard have been shown to allow potential aquatic nuisance species into U.S. waterways. Research efforts will examine how current regulations can be modified to reduce the potential for introductions of aquatic nuisance species.

3. In cooperation with state and Federal agencies, a comprehensive database will be developed on zebra mussel densities, molluscivore (fish that consume mussels) densities and growth, water quality, and other pertinent habitat attributes. Statistical evaluations will be made among these variables to construct models predicting the effects of molluscivores on zebra mussel infestations and subsequent changes in habitat quality. These models will quantify the beneficial aspects of predation on zebra mussels, assist in impact prediction, and aid in allocation of control efforts. Secondary benefits will include information on population dynamics of native molluscivores in waterbodies infested by zebra mussels. This study will directly contribute to formulation of integrated control strategies to reduce or eliminate zebra mussels and indicate the potential for long-term biological control by native fishes.

4. The Aquatic Nuisance Species Information System will be expanded into a WEB-based system, and invasive species engineering guides will be incorporated into the system.

5. The mechanisms that allow invasive species to disperse through the nation's waterways will continue to be examined to determine dispersal mechanisms. Investigations will also be conducted to identify proactive procedures that will assist in limiting new distributions.

6. Scientists will visit projects where mosquitoes are a problem to develop abatement programs and meet with local community representatives to discus control technologies.

7. In cooperation with state and Federal agencies the scientists will investigate methods to control invasion of snakehead fish in Corps Reservoirs and eradication methods once they are there.

ACCOMPLISHMENTS IN PRIOR YEARS

In FY 2003 the following was accomplished:

1. The Aquatic Nuisance Species Research Program (ANSRP) expanded its research efforts and is now addressing all aquatic nuisance species except aquatic plants. An initial list has been compiled of the aquatic nuisance species that cause the Corps significant problems in operations and natural resources areas.

2. Field evaluations have been conducted on dispersal barrier technology and methods to prevent tow traffic dispersal. The threat of zebra mussels in the St. Croix River could result in the shut down of commercial navigation in reaches of the upper Mississippi. Methods being used include acoustical, UV light, pulse power plasma sparkers, hydraulic barriers, shape burst thermal treatment, etc. They have been applied in barrier configurations in channels and on tow vessels to demonstrate effective barriers and removal from vessel surfaces.

3. Ballast water regulations enforced by the U.S. Coast Guard were examined. Information was developed that identified aquatic nuisance species that could be introduced under the current regulations. The introduction of new invasive species that could potentially create problems similar to those of the zebra mussel could significantly alter aquatic systems and stress native endangered and threatened species. The impact of new species such as the snake head fish and Chinese mitten crab could be investigated to determine potential impacts to Corps operations activities.

4. The technologies developed to correlate the phylogeographic zebra mussel distributions to physical and biological characteristics of the water systems are being modified to assist in identifying range-limiting factors for other aquatic nuisance species. These studies have allowed planners to predict precisely the geographical range of zebra mussel's colonization, which will mean a tremendous savings in resources by directing research and control efforts only to those areas susceptible to infestation.

5. Molluscivores impact along longitudinal lines was determined. This information will assist managers in determining integrated control and management procedures depending where their problems occur. The studies were conducted to compare the degree of molluscivore predation among lakes with different densities of zebra mussels. In some regions of the U.S., native molluscivores, (e. g., catfishes, freshwater drum, redear sunfish) have substantially reduced Corbicula populations. However, the benefits of molluscivore predation have rarely been considered in predicting impacts of zebra mussels.

6. Risk assessments were conducted to determine potential impact to facilities and associated natural resources by new invading species. This information will allow the CE to focus efforts on species and issues that present the greatest risk to the inland waterways infrastructure and natural resources.

7. A Beta version of the Aquatic Nuisance Species Information System was developed.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Automated Budget System (ABS)

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$300,000
Allocation Requested for FY 2003	285,000
Allocation Requested for FY 2004	**285,000**
Increase of FY 2004 over FY 2003	0

AUTHORIZATION: The Automated Budget System supports gathering, analyzing and submitting project funding requests to respond to all authorized missions within the Corps Operations and Maintenance program.

JUSTIFICATION: The budget estimate provides for carrying out the following work:

The O&M Automated Budget System (ABS) is an integral part of the Civil Works O&M budget process. The ABS supports the gathering of work package budget data form each Corps project and the setting of priorities for these work packages at the District, Division and Headquarters levels. The ABS enforces the business rules described in the Civil Works Program Development Guidance and insures that the most critical operations and maintenance work is included in the O&M program. The ABS is a distributed system with a central store of budget data and distributed data sets that are developed, analyzed and forwarded to the central database. The ABS also includes analytical tools to help O&M managers rank the importance of all work packages and analyze the impacts of alternative budget proposals on business processes, organizations and categories of work.

PROPOSED ACTIVITIES FOR FY 2004: Continue the ABS support which includes maintaining and updating the software systems, training managers to use the ABS, supporting managers during the budget process and developing new business analysis tools as needed.

ACCOMPLISHMENTS IN PRIOR YEARS: Maintained and updated the software systems, provided new tools to generate reports, provided training and support to managers.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Coastal Inlet Research Program

SUMMARIZED FINANCIAL DATA:

Estimated Sixteen-Year (FY 1994-2009) Program Cost	$32,000,000
Allocation Requested for FY 2003	2,750,000
Allocation Requested for FY 2004	**2,750,000**
Increase of FY 2004 from FY 2003	0
Balance to Complete after FY 2004	7,834,000

AUTHORIZATION: These effort is necessary to provide data for efficient management of Federal navigation projects

JUSTIFICATION: Records demonstrate that the Corps will expend an estimated $8 to $10 billion over the next 25 years at the more than 150 tidal inlets with existing Federal navigation projects to maintain, modify, and create navigation channels and structures, and to mitigate damages to adjacent beaches. In addition, the national "2020" plan for deeper and wider channels to accommodate the next class of vessels brings great uncertainty in prediction of maintenance requirements. Political, engineering, and demographic factors may increase costs. The public perception, right or wrong, that Federal activities at inlets cause adverse response at adjacent beaches may require additional, expensive mitigation. Public sensitivity to current maintenance practices, where dredged material is placed in offshore disposal areas, may result in requirements for more nearshore placements of maintenance materials to benefit adjacent beaches. Inlets are the primary conduits for the transport of environmental constituents between bays and the open ocean, and the Corps may be constrained from performing present activities unless it can make accurate predictions of inlet response, and thus environmental response, to such activities.

The Coastal Inlets Research Program is a fixed-length program to increase Corps capabilities to cost-effectively design and maintain the more than 150 inlet projects that comprise the bulk of coastal operations and maintenance (O&M) expenditures. Because of their complex nature, the behavior of inlets is poorly understood. This has resulted in the Corps spending more of its O&M budget than necessary to maintain inlet projects. The Coastal Inlets Research Program will study functional aspects of inlets such as their short- and long-term behavior and their response to waves, tides, currents, and man-made changes, given their geologic makeup. As inlet behavior becomes better understood, sophisticated tools for management of inlets for navigation projects, such as models and empirical relationships, will become available. These new tools will lead to more efficient, cost effective designs that will reduce O&M requirements and, consequently, costs.

PROPOSED ACTIVITIES FOR FY 2004:

1. Begin major R&D effort to implement state-of-the art predictive formulas for sediment transport under waves and currents, including geomorphic constraints such as equilibrium volumes, equilibrium natural and dredged channel slopes, and critical shear stresses to bound the non-linear calculations. Work is based on the Steering Module of coupled inlet hydrodynamic models developed previously in the Coastal Inlets Research Program.

2. Collect data and validate the Inlet Modeling System, scour model, and morphology change models at deep-draft channels. Collect data and model channel and bypassing processes at sites of opportunity in collaboration with Corps Districts.

3. Conduct major technical transfer workshops.

4. Perform physical and numerical modeling studies on innovative jetty and channel-control designs (jetty weirs, impoundment basins, jetty spurs, bendway weirs, etc.) to reduce dredging costs, improve bypassing, and improve navigation reliability at inlet entrance channels.

5. Initiate web-based Navigation Channel Resource Center to house data on inlet channel surveys, performance, and dredging. This database will serve as a resource for all analytical work in the Coastal Inlets Research Program and provide the Corps with a central location for channel data.

6. Continue adding to the inlets database encompassing all Federally maintained and major non-federal inlets as first stage of an empirically based decision-support tool that will also be populated with calculated and measured waves and tidal currents at major sites.

7. Extend the long-term morphology modeling system newly developed in the Coastal Inlets Research Program to include the adjacent beaches, navigation channel, and flood shoal together with the ebb shoal. Validate and release the model to the public.

8. Acquire field data at inlet jetties to understand the beach and jetty interaction through rip currents, developing a quantitative predictive method for rip current sediment transport.

9. Develop educational materials about coastal processes, inlet processes, and dredging for the lay public and schools at all levels.

ACCOMPLISHMENTS IN PRIOR YEARS:

In FY 2003 the following was accomplished:

1. Completed R&D and held a tech-transfer workshop (50 attendees) for the Steering Module in the SMS interface, allowing automated coupling of tidal circulation (ADCIRC, M2D) and wave models (STWAVE) to account for the wave-current and current-wave interactions. The Steering Module plays a central role for integrated modeling for field use to calculate tidal circulation, waves (with wave-current interaction), and sediment transport at high resolution. This modeling system allows assessment of jetty modifications, channel infilling, and channel alignment for reduction of dredging and improved navigation safety. Successful evaluations were conducted at Shinnecock Inlet, NY; Grays Harbor, WA; Willapa Bay, WA; and Ocean City Inlet, MD.

2. Extended and completed a physical-processes based automated sediment budget system for management of inlets and adjacent beaches to include GIS features and connections to regional sediment management methodologies. The extended system was released Corps wide and to consulting companies and academia. Held three workshops to transfer the technology.

3. Extended the Reservoir Model for calculating volume change of inlet features such as ebb shoals and flood shoals, and validated the model at Ocean City Inlet, MD, and Shinnecock Inlet, NY. This technology allowed predictions to be made in support of Corps navigation projects that previously were beyond capability, accounting for the long-term (order of 100 years) evolution of inlets. Collaborated with the Regional Sediment Management Program in incorporating the Reservoir Model in its coastal modeling technology – Cascade.

4. Developed and verified a numerical model to predict scour for regions characterized by local flow curvature, flow separation, entrainment, and flow interaction with inlet structures. Applied to Matagorda Ship Channel, TX; Ventura Harbor, CA; and Shinnecock Inlet, NY. Model is released to public through the worldwide web.

5. Continued to develop a web-based tutorial and handbook on coastal inlets called “Inlets Online” that addresses needs from the professional engineering and science level to college and high school education. Added several hundred photographs of inlets, glossary of terms, and several case studies for all four coasts of the U.S.

6. Developed a neural-network based data-gap filling utility with predictive capability in support of field measurement and long-term simulations of water level and current.

7. Conducted major tech-transfer workshops in Florida (40 attendees) and at ERDC-CHL (50 attendees). Conducted direct training at several Corps Districts and consulting companies under contract with Corps Districts.

8. Supported Corps districts in addressing concerns on national applicability at specific inlets. These included implementation of a new jetty termination concept at Grays Harbor, WA, and sand management prediction at Shinnecock Inlet, NY, for which periodic mining of the flood shoal was demonstrated to be a competitive and favorable alternative for the total inlet sediment system, and at Ocean City Inlet, MD, involving channel deepening, jetty rehabilitation, and sand bypassing to Assateague Island (National Park Service).

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Cultural Resources (NAGPRA/Curation)

SUMMARIZED FINANCIAL DATA:

Estimated Total (FY 1994 - 2010) Program cost	$44,000,000
Allocation Requested for FY 2003	1,545,000
Allocation Requested for FY 2004	**1,545,000**
Increase of FY 2004 over FY 2003	0
Balance to complete after FY 2004	36,600,000

AUTHORIZATION: The Native American Graves Protection and Repatriation Act (NAGPRA) enacted on 16 November 1990 contains data gathering, reporting, consultation, and permitting provisions that have near-term and long-term implications for Civil Works programs and projects.

JUSTIFICATION: The Native American Graves Protection and Repatriation Act (NAGPRA) is a complex piece of legislation that addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by Federal agencies and museums. As defined by the Act, cultural items are human remains, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony. In FY 1994, the Corps began the process of inventorying human remains and associated funerary objects and completing summaries as mandated by the legislation. In addition, the Corps has been responsible for curation of cultural resource materials collected from its water resources development projects. A Mandatory Center of Expertise (MCX), located at the St. Louis District, has been established to provide overall management of the Corps NAGPRA programs and will serve as an information source and a centralized base for curation compliance and contracting. The MCX will facilitate the assurance of consistent nationwide program implementation and operation. In addition, the Corps is responsible for the curation of 46,255 cubic feet of artifacts collected from its water resources development projects and 3,511 linear feet of associated records. Curation of these materials, the largest volume of all federal agencies responsible for this activity, is required by a number of public laws. Corps collections represent over 80% of the total DoD collections. These extensive collections are located at a variety of curation facilities across the nation. The costs are to accomplish NAGPRA work and to fund MCX curation support to the districts. The MCX, in providing NAGPRA inventories, will assist in establishing the extent of Corps holdings. Associated with efforts to complete NAGPRA, the MCX is beginning the process of effectively managing the Corps curation efforts.

PROPOSED ACTIVITIES FOR FY 2004: The MCX and certain Corps field offices will continue the process of inventorying Native American and Native Hawaiian human remains and associated funerary objects and complete summaries of unassociated funerary objects, sacred objects, and objects of cultural patrimony as mandated by the legislation. Information will be made available to interested individuals and groups through notices in the Federal Register. Through MCX provided funding, districts will continue to be engaged in formal consultation with tribes and organizations for the legislated purpose of repatriating cultural objects for which there are legitimate claims. The MCX will continue to fulfill its chartered activities in support of other military services and DoD, as well as serving in the pivotal role of assisting in the development and implementation of an agency-wide, long-term plan for the curation of USACE archeological collections (heritage assets). The MCX will also continue to work closely with USACE commands on the implementation of final guidelines and procedures for field collection of archeological materials and the long-term treatment of those collections. In this regard, the MCX will act as a source of expertise for processing and rehabilitation of USACE collections. Finally, the MCX will provide leadership in the development of a training curriculum on the treatment of heritage assets and working in consultation with all stakeholders, take initial steps to make this training available to USACE and other appropriate DoD managers and decision makers.

ACCOMPLISHMENTS IN PRIOR YEARS:

A Mandatory Center of Expertise (MCX), located at the St. Louis District, has been established to provide overall management of the Corps NAGPRA programs and will serve as an information source and a centralized base for curation compliance and contracting. The MCX will facilitate the assurance of consistent

nationwide program implementation and operation. The MCX, in providing NAGPRA inventories, will assist in establishing the extent of Corps holdings. Associated with efforts to complete NAGPRA, the MCX is beginning the process of effectively managing the Corps curation efforts.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Dredge Wheeler Ready Reserve

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$8,000,000
Allocation Requested for FY 2003	8,000,000
Allocation Requested for FY 2004	8,000,000
Increase of FY 2004 from FY 2003	0

AUTHORIZATION: The Water Resources Development Act of 1996 (WRDA 96), Section 237. HOPPER DREDGES, contained a provision requiring the Corps hopper dredge WHEELER to be placed in a ready reserve status.

JUSTIFICATION: Section 237 requires that no individual project funds may be used to fund the dredge in its ready reserve status unless the dredge is specifically used in conjunction with a project. Previously the costs for operation of the WHEELER have been reimbursed from project funds from the Operations and Maintenance, General appropriation, and subsequently charged to the Harbor Maintenance Trust Fund account as eligible navigation costs subject to reimbursement. In FY 98, the WHEELER was placed in a ready reserve status as required by the above referenced section of WRDA 96. Operations and Maintenance, General funds were used to fund the dredge, when it was not performing either emergency dredging or training exercises on individual projects in its capacity as a backstop hopper dredge.

PROPOSED ACTIVITIES FOR FY 2004: The hopper dredge WHEELER, will remain in ready reserve status, and will be required to be able to perform emergency dredging work, but may not be assigned any scheduled hopper dredging work. The dredges will be placed in an active status in order to perform work that private industry fails to submit a responsive or responsible bid for advertised dredging, or where industry has failed to perform under an existing contract.

ACCOMPLISHMENTS IN PRIOR YEARS: The WHEELER was kept at the dock, with sufficient crew to respond to any unforeseen requirement within 72 hours and to work for approximately three continuous weeks. The dredge was maintained in a fully operational state and periodically performed routine dredging operations to test equipment and keep the crew trained and prepared. The WHEELER performed approximately 55 days of training during the year. The WHEELER's operations cost for training days were charged to the project and not included in the requested amount, since maintenance dredging is performed during the exercise. In every year but one, since being placed in ready reserve status, the WHEELER was called out to perform urgent dredging to assist industry dredges in restoring navigation channels and waterways.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Dredging Data and Lock Performance Monitoring System

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$1,548,000
Allocation Requested for FY 2003	1,180,000
Allocation Requested for FY 2004	**1,180,000**
Increase of FY 2004 over FY 2003	0

AUTHORIZATION: These efforts are necessary to provide data for efficient management of Congressionally authorized navigation projects, as well as to respond to specific public laws, including PL 96-269 (Minimum Dredge Fleet) and PL 100-656 (Small Business Set-Aside).

JUSTIFICATION:

a. **Dredging Data**: Collection of dredging data is a continual process to support the National Dredging Program. Tasks include data collection and multi-year analyses of dredging costs and quantities for previous, current and future Fiscal Years, including both new work and maintenance dredging performed by the Corps and commercial dredging industry. Analyses include nationwide and regional trending of dredging cost and quantity data. Funding also supports the management, enhancement, operation and maintenance of the Dredging Information System (DIS) which contains dredging data on all Corps performed and contracted dredging of Federal projects. The DIS is a transactional system within the Operations and Maintenance corporate information system. The DIS data includes advertising schedules, contract award and completion data (actual quantities dredged, cost, type dredge used, etc.). The Dredging Information System is an interactive on-line system with District data input directly into the central database and is immediately available for output reports. Reports and data are accessible Corps-wide via the Corps intranet and biweekly updated reports are disseminated to the public via the World Wide Web. The Dredging Statistics Program, which manages the DIS, has been successful in rapidly addressing all dredging data requests from Corps and other customers. These funds include appropriate software and hardware upgrades, user assistance and training, and implementation of program performance measures. The DIS is a feeder system to the Corps performance based budgeting.

b. **Lock Performance Monitoring System (LPMS)**: The Lock Performance Monitoring System provides operational and strategic management data and performance measures for the Corps navigation projects and program. The funds cover salaries, quality control, database management, software and hardware upgrades, user assistance, and CEEIS network services for the Corps nationwide program. This also includes funding for lock characteristics, decision support systems and project database development. These data systems are both transactional systems within the Operations and Maintenance corporate information system. Items 1a (DIS) and 1b (LPMS) are reported under OMBIL-Plus in ITIPS totaling $450,000 of the overall OMBIL-Plus cost.

c. **Future National Dredging and Port Requirements**. To maintain the nation's Federal navigable waterways, approximately 270 million cubic yards of material are dredged in the United States annually. Technological change in the shipping industry is a continual process requiring ongoing efforts to adequately plan for future maintenance dredging activities. Update of current and future needs using the Dredging Needs Database on vessel characteristics, channel dimensions, and commodity origins-destinations and other cargo data is needed to support the Corps maintenance dredging program. Tasks include the annual update of the world fleet composition and forecasts; analysis of current and projected commodity and traffic flows and trade patterns; and new work involving use of the world fleet and Waterborne Commerce Statistics Center's vessel transits to determine characteristics of vessels using U.S. ports

PROPOSED ACTIVITIES FOR FY 2004: Continue on-going Lock and Dredging automated information system operations, maintenance, essential upgrades, security and user support, plus a planned in-depth database review for dredging. Analysis pertaining to fleet, traffic and trade scheduled.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

ACCOMPLISHMENTS IN PRIOR YEARS: Performed operations, maintenance, system upgrades, security and user support for DIS and Lock Performance Monitoring System. Both systems are part of the Corps centralized, sole source of data/information for the Corps and industry. Provided critical data for the assessment of dredge bidding competition.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Dredging Operations and Environmental Research (DOER) Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$6,755,000
Allocation Requested for FY 2003	6,755,000
Allocation Requested for FY 2004	**6,755,000**
Increase of FY 2004 from FY 2003	0

AUTHORIZATION: The Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, and 1999 contained provisions addressing contaminated sediments in navigation channels, dredged material management, and beneficial uses that mandates a continuing need for innovative and enhanced technology.

JUSTIFICATION: The last comprehensive research effort on contaminated sediments and dredged material management was completed in 1978 under PL 91-611. The Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, and 1999 contained provisions addressing contaminated sediments in navigation channels, dredged material management, and beneficial uses that mandates a continuing need for innovative and enhanced technology. Contaminant detection limits are now so low that sub-trace levels of toxic substances are identified. High profile contaminants continue to plague numerous Federal and permitted dredging projects. Costs for beneficial use alternatives are escalating. Traditional upland disposal areas have reached or are reaching capacity and are becoming scarce. Aquatic placement is under increased scrutiny due to habitat degradation concerns and increased listing of aquatic threatened and endangered species with pressure to end this economically preferable alternative resulting in increased litigation with correspondingly increased costs. Environmental standards and controls for all dredged material placement alternatives are more restrictive and will grow in number. Risk-based assessments and management will dominate; unfortunately the Corps' corporate technology base is diminishing and must be maintained. Beneficial use/reuse of dredged material is a priority and environmental resource protection is a mandate. The continued economic viability and national defense of the Nation will depend upon our ability to remove, manage and beneficially reuse dredged material in a cost-effective and environmentally responsible manner. Continued engineering and environmental innovation will be essential to keep costs within budget constraints.

The DOER Program is an integral and highly beneficial component of the Corps navigation dredging and environmental protection missions. Dredging and disposal must be accomplished within a climate of increased dredging workload, fewer placement sites, environmental constraints, and decreasing fiscal and manpower resources. Balancing environmental protection with critical economic needs while accomplishing dredging activities is a major challenge. The program has validated innovative technologies for high profile contaminants and developed risk based assessments that will significantly reduce testing costs at virtually all harbors. Methods for reclamation and reuse of contaminated sediments from upland disposal areas for beneficial purposes as well as increased capacity are key components of the program that will result in tremendous savings.

Major features of DOER include, (1) innovative technologies research, (2) environmental resource protection, (3) dredged material management, and (4) risk research.

PROPOSED ACTIVITIES FOR FY 2004:

1. Transfer technology to a wide body of stakeholders that addresses operational, economic, and environmental components of the Corps dredging program in full coordination and cooperation with other appropriate agencies and offices such as: Environmental Protection Agency, National Marine Fisheries Service, US Fish and Wildlife Service, American Association of Port Authorities (AAPA) and state natural resource managers. Aggressive technology transfer through multiple media and rapid technology application ensures that research products are integrated into decision making at Corps projects and made available to port authorities and other navigation project stakeholders.

2. Identify, evaluate and develop innovative tools, databases and software, equipment, and technology to improve the design, operation, and management of Corps maintained navigation projects. It will address problematic environmental resource issues, such as environmental windows or threatened and endangered species, using a combination of innovative engineering and scientific approaches.

3. Develop dredged material handling, transport, and placement options which are operationally efficient, environmentally sound and cost effective).

4. Apply a comparative risk-based framework in the assessment and management of contaminated dredged material and to develop logical decision support tools that quantify uncertainty and facilitate efficient decision making.

ACCOMPLISHMENTS IN PRIOR YEARS: In FY 2003, the DOER program successfully completed all of the project requirements and completed the following products:

1. Guidelines for the environmentally acceptable methods for aquatic placement of mixed (fine and coarse grained) sediments were provided, along with a database of dredged material geotechnical properties that can be used for modeling and related design. The initial release of improved models for predicting sediment resuspension at different dredges was completed.

2. Completed research on field validation of chronic/sublethal testing, confined disposal facility (CDF) effluent treatment, manufactured soil, biomarker analyses, runoff test, environmental effects in CDFs and biomarker analyses.

3. Environmental windows research applying collaborative interagency studies of physical monitoring of suspended and settled sediments and associated effects on sensitive biota in support of science-based determination of windows for effective protection while maintaining necessary navigation in an economically efficient manner was completed.

4. Risk assessment PC-based decision support tools for all environments for rapid automated field use and complete theoretical bioaccumulation potential uncertainty analyses are available for field use.

5. Innovative (off the shelf) technologies are applied to Corps navigation projects. Alternatives to traditional dredging were evaluated that determined the feasibility of extending periods between required channel maintenance. Innovative dredging and placement equipment, operations, and management techniques that will reduce cost, save time, and are environmentally friendly were the highest priorities.

6. Instrumentation research products on improved sensors to measure dredged material loads removed by hopper dredges, and silent inspection for scows and barges are available.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Dredging Operations Technical Support (DOTS) Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$1,800,000
Allocation Requested or FY 2003	1,545,000
Allocation Requested for FY 2004	**1,545,000**
Increase of FY 2004 from FY 2003	0

AUTHORIZATION: These efforts are necessary to provide support for management of Federal navigation projects

JUSTIFICATION: Maintaining the nation's navigation projects requires compliance with numerous complex environmental statutes and Presidential Executive Orders. The Dredging Operations Technical Support (DOTS) Program fosters the one-door-to-the-Corps concept through providing comprehensive and interdisciplinary technology transfer, technology application, and necessary training to all stakeholders involved in Corps navigational dredging projects. DOTS is managed from a centralized program to maximize cost effectiveness and implement National policies, laws, and complex technical requirements on a consistent basis. The DOTS Program focuses on application of state-of-the-art technology and research results to field problems. Emerging environmental concerns as well as advances in scientific technology sometimes cause uncertainty in administration of the Corps navigational dredging program. The DOTS program provides a consistent technology base and ready response to technical issues with technology transfer capability and generic technology application to other projects with similar problems. Short-term work efforts to address generic Corps-wide technical problems for maintaining navigable waterways are major features of the DOTS Program. Technology transfer of new and emerging techniques for application at Corps navigation maintenance projects is also an important DOTS activity. In response to new research results and continuing staff reductions the DOTS Program will continue to expand to provide technology transfer to all O&M navigation projects.

PROPOSED ACTIVITIES FOR FY 2004: Special emphasis will be placed on transfer of technology developed by the Corps and others that deal with maintenance and management of navigation structures and navigable waterways. Typical technology transfer topics include management of contaminated dredged material; application of innovative risk-based technologies to assess contaminated dredged material; maintenance of coastal inlets and adjacent shorelines; shoreline stabilization and river training activities; assessment and management protocols for beneficial uses of dredged material; channel realignments; protection of endangered species; equipment selection; rational application of environmental windows; lock and dam maintenance needs; channel and harbor maintenance activities; and ship simulation activities.

Training of Corps staff and stakeholders who have regulatory authority over Corps navigation maintenance activities will be conducted on the latest environmental and engineering techniques associated with maintaining navigable waterways. These issues include dredging and dredged material disposal and coastal and inland channel maintenance needs; water quality and related aquatic environmental issues; technology transfer of new and emerging techniques used to determine compliance with environmental protection statutes regarding management of dredged material and other features of navigation projects; development and preparation of manuals jointly with EPA that implement the inland and ocean disposal programs; and short-term work efforts to address generic Corps-wide technical dredging and dredged material management problems related to navigation projects.

ACCOMPLISHMENTS IN PRIOR YEARS: In FY 2003, the DOTS program successfully met all of its goals established for technical support, technology transfer, and outreach. Technical questions, from Federal and state agencies and private concerns dealing with implementation of the inland and ocean testing manuals, continued to be addressed. The DOTS program reports ocean dumping activities to the EPA and the International Maritime Organization as required by the London Convention, l972. The Program has conducted 19 sediment management seminars since 1991 that were attended by over 4,600 personnel from Corps districts, federal, state, and local agencies, industry and environmental protection groups. Instruction focused on state-of-the-science techniques in regulating,

testing, and managing dredged material. The Program also continued to provide specific guidance for the assessment and protection of threatened and endangered species associated with navigation projects. A joint Corps/EPA task force continued updating the ocean disposal implementation manual with a view to combine it with the inland disposal implementation manual into one generic manual, bringing consistency in dredged material testing and management between the Clean Water and Marine Protection, Research and Sanctuaries Acts. The final version of the Upland Testing Manual was completed and will serve as a companion document to the inland and ocean manuals. Maintenance and updating the Environmental Residue and Effects Database (ERED) continued to be critical for successful implementation of the CE/EPA ocean and inland testing manuals for dredged material disposal.

The DOTS Program has been successful as a conduit of information as evidenced by the distribution of thousands of navigation and related technical manuals, bulletins, technical notes and reports currently found on a world wide web home page (www.wes.army.mil/el/dots) supporting, among other things, a complete information retrieval system for all relevant products related to regulating, maintaining, and managing the nations navigable waterways. Educational outreach has proved to be very successful as demonstrated by the website being accessed over 500,000 times during the first two months of operation. The website can be found at http://education.wes.army.mil.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Earthquake Hazards Reduction Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$500,000
Allocation Requested for FY 2003	300,000
Allocation Requested for FY 2004	**300,000**
Increase in FY 2004 Over FY 2003	0

AUTHORIZATION: This program is being conducted under the authority of PL 101-614, November 1990, National Earthquake Hazards Reduction Program Re-authorization Act and individual project authorizations for maintaining safety of personnel and emergency response capability.

JUSTIFICATION: The purpose of this program is to respond to the requirements of PL 101-614, National Earthquake Hazards Reduction Program (NEHRP) and Executive Order (EO) 12941, Seismic Safety of Existing Federal Buildings. The EO directs all Federal departments and agencies to develop an inventory of their owned and leased buildings and an estimate of the cost of mitigating unacceptable seismic risks in their buildings. The objective of PL 101-614 is to establish and initiate for buildings and lifelines a systematic approach to reducing loss of life, injuries, and economic costs resulting from earthquakes in the United States. Lifelines are defined as public works and utility systems.

PROPOSED ACTIVITIES FOR FY 2004: During FY 2004 work is planned to continue on the following: continue development of mitigation program options to meet the executive order requirements and the legal opinion concerns, refine the develop technical seismic building evaluation criteria, refine the develop programmatic seismic criteria, refine the develop guidance or the seismic evaluation and risk mitigation of lifeline facilities, and development of building and powerhouse mitigation plan options, improve information transfer by use of videoconference calls and development of a seismic web site, and develop reports on selected study items. (Note: Significant funds were used to inspect and evaluate drainage pipes through levees. During recent floods seepage along these pipes showed them to be critical weak points in levee protection systems.) USACE has a legal opinion that indicates that once we have identified seismically vulnerable structures we are legally responsible to develop a plan to mitigate these vulnerabilities. The funds requested will be used improve seismic information and requirement transfer, adjust the agency specific mitigation plan (if necessary), provide the tools for implementation of the program that would lead to supportable, defensible mitigation decisions, provide assistance to districts in the development of mitigation concepts and designs, provide support to HQUSACE in oversight and management of the mitigation program, provide technical support to HQUSACE, maintain technical seismic expertise, identify potential cost savings areas for study, develop guidance for additional lifeline systems not previously covered in commercially available standards or existing USACE guidance, develop guidance for operations personnel, develop a mitigation plan for the USACE lifelines, update and maintain database. The development and updating of guidance for the seismic evaluation and risk mitigation of lifeline facilities will continue as well.

ACCOMPLISHMENTS IN PRIOR YEARS: Prior to FY 2004 the following work has been completed: Over 12,000 owned buildings and powerhouses were inventoried and data collected, seismic screenings of over 700 buildings in all seismic regions, seismic evaluations were performed on over 200 buildings and powerhouses in various geographic regions primarily in high and moderate seismic regions, development of reports for FEMA to be forwarded to Congress on both buildings and powerhouses, development of seismic evaluation guidance for buildings and lifelines: building evaluation criteria, powerhouse evaluation criteria, lifeline criteria for intake towers, navigation locks, and powerhouses, two seismic evaluation seminars for district personnel, technical support to the districts in accomplishing the evaluations, over 30 rehabilitation case studies including seismic mitigation cost estimates (rehabilitation, replacement, or demolition) for buildings, over 25 rehabilitation cost estimate studies for structural or nonstructural powerhouse deficiencies, inventory of USACE owned buildings including powerhouse superstructures, inventory of USACE leased buildings with estimated populations and recommendations for leasing procedures, development of mitigation program options to meet the executive order requirements and the legal opinion concerns, develop technical seismic building evaluation criteria, develop programmatic seismic criteria, develop guidance for the seismic evaluation and risk mitigation of lifeline facilities, develop associated costs studies to include

asbestos and lead based paint costs associated with rehabilitation, adapt the building and powerhouse inventory database to an Oracle system compatible with the Operations and Maintenance Business Information Link (OMBIL) program and revise building report to reflect the new criteria.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Facility Protection

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$ 16,000,000
Allocation for FY 2002 (Initial funding in Defense Appropriations)	139,000,000
Allocation Requested for FY 2003	64,000,000
Allocation Requested for FY 2004	**13,000,000**
Increase of FY 2004 Over FY 2003	0

AUTHORIZATION: PL 84-99; PL 93-288; Executive Orders 10480 and 12656 which cite several acts including PL 93-288, the basis for the Federal Response Plan; and Executive Order 13228 which provides for Agency responsibilities regarding Homeland Security.

JUSTIFICATION: On 11 September 2001, our Nation suffered a loss of unimaginable proportions, with terrorist attacks in New York and Washington. These events have emphasized the resolve of terrorists to weaken our Nation by inflicting massive casualties and destroying vital elements of our infrastructure. The scope of Corps water resources assets considered highly vulnerable to future terrorist attacks include 75 hydroelectric power projects, 383 major lakes and reservoirs with 376 million annual visitors, 8,500 miles of levees, 276 locks, 4,340 recreation areas, 11.7 million acres of public land, 25,000 miles of commercially navigational channels, 926 shallow and deep draft harbors, and $1.2 billion in research and development facilities.

In response to the attacks of September 11, 2001, the Corps compiled a list of critical public assets in accordance with Presidential Decision Directive number 63. In 2001, the Corps initiated vulnerability assessments (RAM-D) of critical water resources infrastructure to determine vulnerability to terrorist attacks. A clear need exists for improved security and protection at vital Corps water resources and administrative facilities supporting our missions. The protection of Corps critical infrastructures incorporates the elements of detection, protection, and response. (a) Detection: increased surveillance and awareness, crime watch program. (b) Protection: Continued implementation of protection measures. (c) Response: local law enforcement support, local guard force. The assessments of Corps facilities have identified key research areas, including waterborne threats, rapid recovery and emergency response, vulnerability and damage assessment tools, structural hardening.

PROPOSED ACTIVITIES FOR FY 2004: Complete implementation of facility protection standards at MR&T facilities, continue Force Protection Standards for Corps Offices, continued interfacing with other Federal, state and local government offices and private industry, and continue ongoing research efforts funded in FY 2003. Emergency action plans require updating and stockpiling of critical parts and materials or special items will be required.

ACCOMPLISHMENTS IN PRIOR YEARS: PL 107-117, Defense Appropriations, provided emergency supplemental funds with no expiration under the Operation and Maintenance, General account in the amount of $139 million. These funds were applied for initial Force Protection including guards (FY 2002), vulnerability and risk assessments, and implementation of Force Protection Standards for Critical Infrastructure. In FY 2003, funds were used for guards for facilities and critical infrastructure, continued implementation of Force Protection Standards for Critical Infrastructure, and vital research.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Great Lakes Sediment Transport Models

SUMMARIZED FINANCIAL DATA:

Estimated Total Program Cost	$12,000,000
Allocation Requested for FY 2003	1,000,000
Allocation Requested for FY 2004	**1,000,000**
Increase of FY 2004 from FY 2003	0
Balance to Complete after FY 2004	7,500,000

AUTHORIZATION: Section 516(e), Water Resources Development Act of 1996, as amended by Section 334, Water Resources Development Act of 2000. The total estimated program cost was increased by $500,000 to reflect the earmark provided in FY 2002 for additional modeling of the Maumee River, which had previous model development under the program.

JUSTIFICATION: Under Section 516(e) of the Water Resources Development Act of 1996, the Corps is directed to develop sediment transport models for tributaries to the Great Lakes that discharge to Federal navigation channels or Areas of Concern (AOCs). These models are being developed to assist state and local resource agencies evaluating alternatives for soil conservation and nonpoint source pollution prevention in the tributary watersheds. The ultimate goal is to support state and local measures that will reduce the loading of sediments and pollutants to navigation channels and AOCs, and thereby reduce the costs for navigation maintenance and sediment remediation.

PROPOSED ACTITIVITIES FOR FY 2004: FY 2004 funds will be used to complete development of models at four tributaries (Genesee River, New York; Black River, Ohio; St Joseph River, Michigan; and, Burns Waterway, Indiana), initiate model development at four tributaries (St. Louis River, Minnesota/Wisconsin; Oswego River, New York; Cuyahoga River, Ohio, and; River Raisin, Michigan), and conduct scoping and coordination for future model development at the next set of priority tributaries (Eighteen Mile Creek, New York; East River, Wisconsin; Grand River, Michigan; Sandusky River, Ohio). State and local partners will use models developed under this program to reduce loadings of sediments and contaminants to Great Lakes tributaries, thereby reducing future dredging requirements at Federal navigation channels and promoting the restoration of beneficial uses at Great Lakes Areas of Concern.

ACCOMPLISHMENTS IN PRIOR YEARS: A strategy for implementing this authority was developed in cooperation with the Great Lakes Commission. Tributaries for model development were prioritized by the States. Program implementation is being fully coordinated with the EPA and Dept of Agriculture (NRCS) and there is an active program for public outreach including an Internet home page for this program to keep model users and stakeholders informed: **http://www.glc.org/projects/sediment/**. When models are developed, districts conduct training workshops for state and local stakeholders interested in using the models. Model development has been completed at four tributaries (Saginaw River, Michigan; Nemadji River, Minnesota/Wisconsin; Menomonee River, Wisconsin; and, Grand Calumet River, Indiana). Model development is underway at four tributaries (Clinton River, Michigan; Buffalo River, New York; Mill & Cascade Creeks, Pennsylvania, and; Maumee River, Ohio/Indiana/Michigan). Districts are conducting scoping and coordination for model development at four other tributaries (Genesee River, New York; Black River, Ohio; St Joseph River, Michigan; and, Burns Waterway, Indiana).

The model developed for the Nemadji River is being utilized by the county and NRCS to better manage forestry practices in the watershed to reduce soil and streambank erosion. The model of the Grand Calumet River is being used to support the State of Indiana's development of Total Maximum Daily Loads (TMDLs) for the River with supplementing funds from the Corps' Remedial Action Plan Program (Section 401, WRDA 1990), state funds, and a grant from USEPA. The model for the Menomonee River is being used by local agencies to manage urban development and evaluate stream restoration projects. State and local partners have identified uses for models under development including design and placement of filter strips and other soil conservation measures, management of urban development and construction practices, streambank stabilization planning, and contaminated sediment cleanup evaluations.

Continued development of models underway (Clinton River, Michigan; Buffalo River, New York; Mill & Cascade Creeks, Pennsylvania, and; Maumee River, Ohio/Indiana/Michigan), initiated model development for those tributaries under scoping and coordination (Genesee River, New York; Black River, Ohio; St Joseph River, Michigan; and, Burns Waterway, Indiana), and conduct scoping and coordination for future model development at the next set of priority tributaries (St. Louis River, Minnesota/Wisconsin; Oswego River, New York; Cuyahoga River, Ohio, and; River Raisin, Michigan). A report to Congress, summarizing the status of program implementation will also be developed, as directed in Section 334, WRDA 2000.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Long Term Option Assessment for Low Use Navigation

SUMMARIZED FINANCIAL DATA:

Estimated Two Year Study Cost	$1,750,000
Allocation for FY 2003	
(Available funds to develop study management plan) Reprogramming	25,000
Allocation Requested for FY 2004	**1,000,000**
Balance to Complete in FY 2005	725,000

AUTHORIZATION**:** Section 216, River and Harbor Act of 1970, PL 91-611, 84 Stat. 1830.

JUSTIFICATION: Operation and Maintenance funds for navigation are increasingly constrained, necessitating project prioritization and the consideration of long-term management strategies. The Budget continues to give priority to maintaining inland waterway segments and coastal harbors that have a high utilization, while also funding the operation and maintenance of shallow draft harbors that support commercial or subsistence fishing or Federal government activities. This study will identify data needs and methodologies to assess lower use inland waterways and harbors, examine the level of continued Federal interest in these projects, and provide an assessment of possible long-term management options for projects with diminishing NED benefits. Such options will include transfer to another public or private entity, privatization, divestiture, and alternate O&M funding mechanisms.

ACCOMPLISHMENTS IN PRIOR YEARS: FY 2001 funds were used to conduct a limited-scope survey in all Corps districts and develop an initial database of harbors handling less than 25,000 tons of commercial cargo annually. That survey identified current navigation activities at these projects, including commercial or charter fishing, subsistence, harbors-of-refuge, recreation, use by government vessels, and use by commercial passenger vessels, including ferries. However, the survey provided little or no information as to the magnitude of each of these alternative navigation activities or the economic benefits they generate.

Reprogrammed FY 2003 funds in the amount of $25,000 are being used to develop a study management plan.

MAJOR FEATURS OF THE FY 2004 EFFORT: FY 2004 funds of $1,000,000 will be used to initiate the study. FY 2004 activities will include:

- Compile a database of Corps navigation projects that have lower commercial use, and do not support subsistence fishing or federal government use.
- Identify historic levels of O&M funding for low-use projects and segments.
- Identify and assess data needs, measurement tools and methodologies that could be used to quantify the level of NED benefits generated by lower commercial use projects.
- Perform an economic analysis of a sample of low use segments. The analysis will include the direct effects of reduced operation or closure on: (1) transportation benefits, (2) substitute transportation systems, (3) other pubic benefits such as municipal and industrial water supply, flood damage reduction, power generation, and ecosystem restoration, it also will address the regional effects such as (1) economic activity, (2) revenues and (3) employment.

- Perform an economic analysis of a sample of low-use harbors. The analysis will include the direct effects or reduced maintenance or closure on : (1) transportation benefits including goods and people, (2) commercial fishing benefits, (3) subsistence benefits (4) recreation benefits, (5) harbor or refuge benefits, and (6) other public benefits. It also will address the regional effects such as (1) economic activity, (2) revenues and (3) employment.

- Formulate and assess a range of long-term management options for lower commercial use navigation projects, including transfer to another public or private entity. privatization, divestiture, alternative O&M funding mechanisms, etc. Assessments will include a review of previous navigation project divestitures of segments, such as the Fox, Muskingum and Kentucky Rivers, and other projects as appropriate. The assessment will review asset divestiture practices for other types of federal projects and for private sector entities, such as railroads. The assessment will also identify the impacts of various long-term options on the balance of the navigation system, O&M spending, current project customers, and affected communities.

FY 2005 funds will be used to complete the assessment of long-term management options.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

PROTECTION OF NAVIGATION (Four Items)
Protection, Clearing, and Straightening of Channels
Removal of Sunken Vessels
Waterborne Commerce Statistics
Harbor Maintenance Fee Data Collection

SUMMARIZED FINANCIAL DATA:

Estimated Annual cost of Continuing Program	$6,170,000
Allocation Requested for FY 2003	5,970,000
Allocation Requested for FY 2004	**5,970,000**
Increase of FY 2004 over FY 2003	0

AUTHORIZATION:

Protection, Clearing, and Straightening of Channels - Section 3 of the 1945 River and Harbor Act (as amended by Section 915 (g) of the 1986 Water Resources Development Act) provides continuing authority for limited emergency clearing of navigation channels not specifically authorized by Congress. A limit per project is not specified; however, in any given year, a maximum of $1,000,000 may be used nationwide.

Removal of Sunken Vessels - Removal of sunken vessels, or other similar obstructions, is governed by Sections 15, 19, and 20 of the River and Harbor Act of 1899, as amended.

Waterborne Commerce Statistics - The USACE serves as the Federal Central Collection Agency, and is the sole U.S. Government source, for U.S. domestic and foreign (U.S. foreign statistics mission transferred to USACE from Census in FY 1999) waterborne commerce and vessel statistics in conformance with the River and Harbor Act of 1922 as amended.

Harbor Maintenance Fee Data Collection - PL 103-182

JUSTIFICATION: The budget estimate provides for carrying out the following work:

a. Protection, Clearing, and Straightening of Channels - Work is undertaken as emergency measures to clear or remove unreasonable obstructions to navigation in navigable portions of rivers, harbors and other waterways of the U.S., or tributaries thereof, in order to provide existing traffic with immediate and significant benefit. The amount requested is an estimate based on historical experience. If actual requirements are more than estimated, funds will be reprogrammed to meet demonstrated needs.

b. Removal of Sunken Vessels **-** Primary responsibility for removal belongs to the owner, operator, or lessee. If the obstruction is a hazard to navigation and removal is not undertaken promptly and diligently, the Corps may obtain a court judgement requiring removal, or remove the wreck and seek reimbursement for the full cost of removal and disposal. Determinations of hazards to navigation and Federal marking and removal actions are coordinated with the United States Coast Guard in accordance with a memorandum of understanding between the two agencies dated 16 October 1985. Removal procedures are outlined in 33 CFR 245. If removal requirements are more than estimated, funds will be reprogrammed to meet actual needs.

c. Waterborne Commerce Statistics - Activities supporting this national statistics mission include: (1) collecting and reporting (includes enforcement role) of water transportation statistical data; (2) automated systems development and operation (transactional systems within Operations and Maintenance corporate information system), processing, compiling, and publishing (monthly, quarterly, and annually) statistical data and information on waterborne commerce and vessels moving on the internal U.S. waterways, the Great Lakes, and through all U.S. ocean channels and ports; and (3) compiling and publishing the official U.S. documentation of U.S. vessels engaged in commerce, their principal trades and zones of operation. The data provide essential information for navigation project investment analyses and annual funding prioritization for operations and maintenance of existing projects; as project output information for computation of performance measures; for input into the U.S. National Accounts; and for regulatory, emergency management decisions, and homeland defense. This item is reported under OMBIL-Plus in ITIPS and is $1,350,000 of the total OMBIL-Plus cost.

d. Harbor Maintenance Fee Data Collection - Up to $5 million is authorized to be used annually for the administration of the Harbor Maintenance Trust Fund. Most of these funds are used by Customs. The Corps is required to collect data on domestic and foreign shippers of waterborne commerce subject to the Harbor Maintenance Tax (HMT) and provide it to Customs for enforcement. Analysis of Harbor Maintenance Trust Fund (HMTF) revenues and transfers is required to validate the adequacy of the HMTF in light of the uncertainty over the legal and international challenges to the HMT, and to document the operation of the trust fund in the *Annual Report to Congress*. Analysis of waterborne commerce shipments and vessel movement data is also needed to respond to legal questions to the HMT; to analyze alternative funding options; and to assess the economic and competitiveness impacts of other potential funding sources. Therefore the Corps requires a portion of the administrative funding. The recent transfer of the Foreign Waterborne Transportation Statistics Program to the Corps will require the data processing system to be expanded to include validation of users engaged in foreign trade, in addition to domestic users. Funds will also be used to modify computer programs to conform to changes dictated by Customs' Automated Commercial Environment. Requested funds are needed to operate and enhance the system to analyze, enforce, collect and validate harbor usage information required by the Customs Service for auditing HMT collections.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

FUNDING PROFILE

	Actual FY 2002	FY 2003	FY 2004
(a) Protection, Clearing, and Straightening of Channels	$ 50,000	$ 50,000	$ 50,000
(b) Removal of Sunken Vessels	$ 500,000	$ 500,000	$ 500,000
(c) Waterborne Commerce Statistics	$4,439,520	$4,745,000	$4,745,000
(d) Harbor Maintenance Fee	$ 551,931	$ 675,000	$ 675,000
TOTAL	$5,541,000	$5,970,000	$5,970,000

PROPOSED ACTIVITIES FOR FY 2004: Continue ongoing programs to keep channels clear. Continue nation's waterborne commerce, vessel and shipper data and statistics programs by on-going operations, maintenance, security, adequate upgrades plus work with industry and users to insure enhanced operations at a minimum level of burden.

ACCOMPLISHMENTS IN PRIOR YEARS: Performed necessary channel operations. As the Federal Statistical agency for waterborne commerce and vessel activities, not only performed on-going operations, maintenance, security and enhancements to automated information systems and the statistical operation, but collaboratively worked with Federal partners, such as U.S. Customs and with industry.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Inland Waterway Navigation Charts

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$5,000,000
Allocation Requested for FY 2003	4,120,000
Allocation Requested for FY 2004	4,120,000
Increase in FY 2004 Over FY 2003	0

AUTHORIZATION: PL 85-480, approved 2 July 1958, authorizes the Commander, USACE to publish information pamphlets, maps, brochures, and other material on river and harbor, flood control, and other civil works activities, including related public park and recreation facilities that may be of value to the general public.

JUSTIFICATION: This effort provides Corps' Electronic Navigational Chart (ENC) data for all inland waterways and other federal navigation channels maintained by the Corps to be used by commercial Electronic Chart Systems (ECS), which, when combined with the existing Differential Global Positioning System (DGPS), will improve the safety and efficiency of marine navigation in both inland and coastal waterways of the United States. On inland waterways, the Corps will collect more accurate survey and mapping data than is currently on its paper charts, and produce Inland Electronic Navigation Charts (IENCs). Accuracies of about two meters are necessary to match the positional accuracy of the DGPS signal, which when combined in the commercial ECS will greatly improve the safety and efficiency of navigation. This will allow safe navigation through bridge openings during fog and other bad weather conditions as well as during heavy traffic situations, and provide an accurate display for other systems such as radar and Automatic Identification Systems. The Corps will establish a common format and content for these charts, which will follow commercial international standards for navigation charts, and will be closely coordinated with the U.S. Coast Guard and the National Oceanic and Atmospheric Administration (NOAA). The Corps will also establish a common production and dissemination process among districts and divisions to ensure consistent quality and availability across the inland system. The Corps will seek evaluation and feedback from navigation users and ECS vendors to ensure maximum benefit of their ENC data. In coastal waterways, the Corps will convert its highly accurate digital survey and engineering data and related information that it uses for channel design, construction and maintenance operations to adhere to international chart standards, and will seek to supplement or enhance available NOAA ENCs. The resulting inland and coastal ENC data will be available to the public through internet access, or other hard media if required. Highly accurate information for construction and maintenance of U.S. navigation channels is routinely collected by the Corps, but is not easily available for vessel navigation. Such digital survey and engineering information could greatly benefit both the safety and efficiency of navigation, if the data were structured for electronic chart applications and supplemented with other data.

In 1994, as a result of an AMTRAK derailment accident near Mobile, Alabama, which was caused by a barge on the inland waterway striking a bridge pier in poor visibility, the National Transportation Safety Board recommended that the Chief of Engineers begin to promote use of electronic charts for safety of navigation on inland waterways. The first part of that recommendation was to extend the coastal DGPS into the inland waterways, which is now about 90% complete. The second part is this effort to provide accurate and current ENC data necessary to allow the commercial ECS to be used to improve safety and efficiency. The American Waterway Operators have also stated a need for consistent Corps channel data for inland waterway electronic charts, and the recent Marine Transportation System study recommended electronic chart coverage be extended into inland waterways and the addition of hydrographic survey information. NOAA is also developing ENC products for their coastal charts, which require use of source data – including Corps channel information. The Water Resources Development Act of 2000, Section 558, requires Corps districts to provide digital hydrographic survey data to the National Oceanographic Atmospheric Administration (NOAA) in an agreed upon format not later then 60 days after completion of a survey. The U.S. Coast Guard also has plans for implementation of vessel traffic systems (VTS) in New Orleans and other areas and merging of its Aids to Navigation into the ENC datasets provided by other federal agencies such as the Corps and NOAA is necessary. VTS data could be extremely useful to vessels using the waterway, although an electronic chart is needed for display of the information.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

PROPOSED ACTIVITIES FOR FY 2004: Continue coordination of standards and requirements with the National Oceanic and Atmospheric Administration (NOAA), U.S. Coast Guard, American Waterway Operators (AWO), and the Inland Waterways Users Board (IWUB); complete IENCs for most of the Mississippi River and all of the Ohio, Black Warrior, Tombigbee, and Red Rivers; begin update program for completed IENCs; complete coastal product development in two districts and begin development in new districts; and continue baseline surveys of waterway features.

ACCOMPLISHMENTS IN FY 2003: Coordinated standards and requirements with the National Oceanic and Atmospheric Administration (NOAA), U.S. Coast Guard, American Waterway Operators (AWO), the Inland Waterways Users Board (IWUB); developed initial IENCs for most of the Mississippi River, and all of the Ohio, Black Warrior, Tombigbee, and Red Rivers; developed the plans, procedures and guidelines necessary for standardization of inland waterway chart data products; developed the internet web site for data dissemination; began new highly accurate baseline surveys on the inland waterways of features needed in the IENC data; and began coastal product development in two districts.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Monitoring of Completed Navigation Projects

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY2003-2008) Program Cost	$10,000,000
Allocation Requested for FY 2003	1,750,000
Allocation Requested for FY 2004	**1,750,000**
Increase of FY 2004 over FY 2003	0
Balance to Complete Program after 2004	6,500,000

AUTHORIZATION: These efforts are necessary to provide data for efficient management of Federal navigation projects

JUSTIFICATION: The Corps operates and maintains more than 800 navigation projects encompassing more than 25,000 miles of waterways. The Corps needs a national program to identify the best navigation project practices and use them to improve all navigation projects' performance. Optimizing projects' performance requires that they be monitored, evaluated against preconstruction projections and present needs, and the lessons learned translated into proactive management guidance for Corps Districts. Information gained from monitoring navigation projects, including changes in sediment transport, water levels, currents, waves, flushing, river flows and other hydraulic phenomena with associated environmental impacts, will be used to verify design expectations, determine benefits, and identify operational and maintenance efficiencies. Information collected from monitored navigation projects can improve projects' performance and optimize opportunities for environmental enhancement. Information collected and analyzed on a national basis documents successful designs, disseminates lessons learned on projects with problems, and provides upgraded field guidance that will help reduce life-cycle costs on a national scale.

Selective and intensive monitoring of Civil Works navigation projects is executed to acquire information to improve project purpose attainment, design procedures, construction methods, and operation and maintenance (O&M) techniques. Both shallow- and deep-draft navigation projects located in rivers, reservoirs, lakes, estuaries, and the coastal zone are included in this program. Projects that will potentially provide maximum life-cycle cost savings are identified and those that best address high-priority cost savings are selected for monitoring and evaluation. Monitoring plans are developed jointly by Corps Districts and the US Army Engineer Research and Development Center. They consist of either a comprehensive detailed survey to verify post-construction conditions on a one-time basis or a repetitive collection of field data. The intensive data are analyzed and the results compared to the pre-construction predictions to verify or upgrade existing design guidance for minimizing O&M cost and assuring project benefits. The analyses include structural, topographic, bathymetric, and hydrodynamic responses and intercomparisons of projects when applicable. Reductions in program funding in recent years have minimized initiating new monitoring projects.

Coordination between the Corps and other Federal, state, and local agencies is essential for proper accomplishment of this program. In addition to satisfying Corps' requirements, the data are made available through publications and will be of value to local, State, and other Federal agencies tasked with the development and implementation of regional coastal and inland navigation management policies. Results are communicated to member agencies of the Marine Transportation System (MTS) committees.

PROPOSED ACTIVITIES FOR FY 2004: Coastal and Hydraulics Engineering Technical Notes as well as technical reports will be published and disseminated to the field immediately with improved/corrected design guidance. A technical report regarding findings and conclusions of periodic inspections of coastal structures previously monitored by the MCNP program will be published. The periodic data sets are used to improve understanding in the design, construction, and maintenance of both existing and future structural projects, and will help avoid past design deficiencies that failed and/or resulted in high maintenance projects. A technical report providing results of monitoring the dolosse armor units at Crescent City Harbor, CA, will be completed. A technical report for monitoring of Tedious Creek Harbor, MD, will be completed for hydrodynamic, sedimentation, structural, environmental, and geotechnical conditions at the site. Monitoring of the Tom

Bevill Lock and Dam, AL, will be completed to evaluate river flows in the upper lock approach and alternatives that alleviate adverse cross-current conditions, and a technical report will be published. A technical report will also be provided for monitoring of upper Mississippi River training structures that study optimal riverine hydrodynamics and sediment transport processes for minimizing dredging. Finally, monitoring of Aguadilla Bay Harbor, Puerto Rico, to study coastal hydrodynamics, sediment transport, and structural conditions at the site will be completed and a technical report published. Monitoring of several navigation projects will continue. Included are monitoring of bendway weirs at the Greenville River Bridge reach of the Mississippi River to determine their navigation, sedimentation, and structural effectiveness. Ship motion data obtained for vessels in existing and improved reaches of the Houston Ship Channel will continue to be analyzed and used to validate/enhance ship-to-ship interaction in simulation models. In addition, monitoring will continue for "pocket wave absorbers" used in the Great Lakes to reduce wave action in vertical, parallel-wall harbor entrances and mooring areas.

ACCOMPLISHMENTS IN PRIOR YEARS: In FY 2003, a technical report providing results of monitoring of the performance of a unique (all concrete) breakwater at Ofu Harbor, American Samoa, was published. Additional technical reports, including one on stone degradation of coastal structures located in the Great Lakes, another on monitoring of tidal inlet improvements at Barnegat Inlet, NJ, and yet another on the results of monitoring the fate of dredged material placed outside the mouth of the Columbia River, WA/OR, were published. Additionally, Coastal and Hydraulics Engineering Technical Notes summarizing lessons learned from monitoring completed projects were published and disseminated to the field through meetings, mailings, and web-based distribution. Additional technical notes were published for each work unit in the MCNP program providing interim results of the monitoring efforts. The MCNP web site also was enhanced. All MCNP publications are available electronically through the web site. A periodic inspection of 42-ton dolosse armor units at the Crescent City Harbor, CA, breakwater was conducted, and monitoring of several additional navigation projects (Tedious Creek, MD; Aguadilla Harbor, PR; Tom Bevill Lock and Dam, AL; and Upper Mississippi River training structures) continued. Monitoring was also initiated to determine the effectiveness of three new additional navigation projects (bendway weirs at Greenville Bridge Reach, Mississippi River; ship motions for commercial vessels at Houston Ship Channel, TX, and "pocket wave absorbers" in the Great Lakes). These projects were nominated by Corps field offices for inclusion in the MCNP program.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

National Dam Safety Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$250,000
Allocation Requested for FY 2003	45,000
Allocation Requested for FY 2004	**45,000**
Increase of FY 2004 Over FY 2003	0

AUTHORIZATION: Dam safety legislation PL 92-367 and PL 99-662, and the National Dam Safety Program Act (Section 215 of PL 104-303).

JUSTIFICATION: The *Federal Guidelines for Dam Safety* provides a framework for safe construction, operation, and maintenance of Corps dams. Dams in the United States must be constructed, operated, and maintained in accordance with sound engineering practices to prevent failure and avoid potential loss of life and destruction of property. The National Dam Safety Program (NDSP) was established to enhance national dam safety. These funds support the activities under the NDSP, in the interests of the Corps and the citizens of the Nation. The National Dam Safety Program Act strengthens the NDSP, whose purpose is to reduce risks to life and property from dam failure in the United States. The Act also codified the Interagency Committee of Dam Safety (ICODS) to coordinate the Federal actions under the National Dam Safety Program. The Chief, Engineering and Construction Division, Directorate of Civil Works (USACE, Dam Safety Officer), or his representative, represents the Department of Defense as a member of ICODS. The Corps also provides a representative to the National Dam Safety Review Board for the Secretary of Defense. The National Dam Safety Program Act expanded the scope of previous dam safety legislation and the requirements for ICODS participation with various states to improve dam safety in the United States. Through ICODS, the NDSP provides support in development of federal guidelines for dam safety, promotion of public awareness programs, publications, training materials, and workshops. The Act also provides for archival research that is supported by Federal dam owning agencies through ICODS and the National Performance of Dams Program.

PROPOSED ACTIVITIES FOR FY 2004: The NDSP account provides effective coordination of dam safety activities across the various regions of the Corps and provides for Corps participation at national dam safety events. The account also provides for District participation on the National Dam Safety Management Team, which advises the Corps Dam Safety Officer on safety of dams policy. The NDSP supports Corps membership and participation in various national and international dams organizations including the US Society on Dams (USSD) and the Dam Safety Interest Group (DSIG). The USSD along with its international counterpart, the International Committee on Large Dams (ICOLD) supports technical knowledge concerning the benefits, engineering, design, and construction of dams. The DSIG is an international group of dam owners involved in research and development of dam engineering. Participation with the DSIG allows the Corps to leverage Civil Works research and development funds. The NDSP account also provides funding for nation wide safety of dams prioritization studies and coordination of the portfolio risk assessments across the nation. The NDSP funds special briefings for Congressional interests on the safety of dams and the coordination of safety of dams with other federal agencies.

ACCOMPLISHMENTS IN PRIOR YEARS: The NDSP account provided Corps presentations at the United States Society of Dams (USSD) conference and the Association of State Dam Safety Officials (ASDSO) during FY02 and FY03. This account also supported the Corps response to the 9-11 events in the safety of dams area. The NDSP program account provided field participation in preparing responses to the recommendations of the Corps Peer Review of the Dam Safety Program. Additional funds provide for continued development of the Dam Safety Program Management Tools (DSPMT) and the Dam Safety Program Performance Measures (DSPPM). Both programs are being developed along with the Interagency Committee on Dam Safety (ICODS) to improve both Federal and State safety of dams programs.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

National Dam Security Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$250,000
Allocation Requested for FY 2003	30,000
Allocation Requested for FY 2004	**30,000**
Increase of FY 2004 Over FY 2003	0

AUTHORIZATION: Executive Order 13010 - Critical Infrastructure Protection, and Presidential Decision Directives (PDD) 62 and 63.

JUSTIFICATION: The National infrastructure in the United States, including dams, is a potential target of terrorist threats. Additional security, training, and preparedness are required to guard against terrorist activity and to avoid potential catastrophic loss of life and destruction of property. In recognition of these increasing terrorist threats, the Critical Infrastructure Protection, and Presidential Decision Directives (PDD) 62 and 63 were issued. The Interagency Committee on Dam Safety (ICODS) identified terrorism as a major threat to dams in the United States. Of all the agency members of ICODS, the Department of Defense acting through the Corps has the most unique and in-depth knowledge in the area of antiterrorism program development and execution. This program uses the Army's experience in antiterrorism planning and building design as the basis for developing a program to safeguard Corps dams. Training under this program is designed for dam operators and field managers to improve their awareness of potential threats and to establish lines of communications to minimize damage if and when a threat occurs. The program will provides for exchanging information on threats received and the establishment of a database to review trends in the pattern of threats. Through coordination with ICODS and the Interagency Forum on Infrastructure Protection (IFIP), this program will assist in the development of interagency guidance related to the security of dams and appurtenances.

PROPOSED ACTIVITIES FOR FY 2004: The National Dam Security Program provides development and coordination of security systems for Corps infrastructure. The major element of this program is the Risk Analysis Methodology for Dams (RAM-D) program that provides the framework for the analysis of security risks at USACE dams and other infrastructure facilities. During FY04, the program will develop guidance for the periodic reevaluation of facilities. Providing periodic updates to security plans assists in the maintenance of dams and the environmental features associated with dams. The program also provides for training field personnel in the use of RAM-D when evaluating the status of current measures and supports developing security of dams training programs. The additional funding in FY 04 is to conduct training for field managers using the Interagency Forum on Infrastructure Protection (IFIP) security assessment methodology; for conducting/reviewing a random sample of dam assessments; and to continue the development of the IFIP methodology for use by both USACE personnel and private dam owners. Future work will include the development of a periodic program for reassessing the security of dams to be coupled with other periodic inspections of Corps owned and operated dams.

ACCOMPLISHMENTS IN PRIOR YEARS: After the national 9-11 events, the National Security of Dams Program oversaw the completion of some 350 RAM-D evaluations of Corps dams. It provided assistance to various state dam regulators in developing state programs. The program developed a RAM-D training course in conjunction with the Huntsville training center and tested the course with a class of students from various Federal and state agencies. The program also provided initial funds for the centers of protective design and electronic design to start the development of Civil Works related programs. In addition a centralized classified depository for completed RAM-D assessments was established.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP)

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$6,300,000
Allocation Requested for FY 2003	4,120,000
Allocation Requested for FY 2004	**6,000,000**
Increase of FY 2004 Over FY 2003	1,880,000

AUTHORIZATION: Executive Orders 10480 and 12656 which cite several acts including PL 93-288, the basis for the Federal Response Plan.

JUSTIFICATION: The budget request will enable the Corps to be prepared to accomplish its continuity of operations and continuity of government responsibilities during national/regional crises. This entails support of civil government through coordinated execution of federal agency plans and the planning/conducting of limited exercises to test readiness to provide such support. The cited executive directives assign significant responsibilities for such preparation (planning, training, research and testing) to the Corps. This includes responsibility for development of comprehensive national level preparedness plans and guidance for response to all regional/national emergencies, whether caused by natural phenomena or acts of man, plans for response(s) to acts of terrorism, and the local preparedness necessary to support Corps continuity of operations. The Corps provides engineering and construction support to state and local governments in response to catastrophic natural/technological disasters. Rapid response to disasters of a regional/national magnitude requires that extensive pre-emergency planning and preparedness activities be conducted to assure the availability of a work force capable of shifting from routine missions to crisis operations and the organizational command and control structure(s) necessary to provide a coordinated and comprehensive response in the critical early stages of a catastrophic disaster.

This program provides the activities necessary to prepare for response to catastrophic natural and technological disasters requiring major Federal support of state and local governments overwhelmed by a disaster event, and for national level emergency water planning. The preparation requires the development of plans, training of employees, conducting of training exercises, including support to Federal Emergency Management Agency (FEMA) exercises, and coordination within DOD and with other Federal agencies and state and local governments. Unlike the Corps Civil Works programs related to individual project planning, development and operations and maintenance, the NEPP requires the development of an integrated command planning and response capability. Corps divisions have a key role in the planning, coordination and operational control of multi-district response(s) and the integrated preparedness effort required for accomplishing this response. Preparation also includes the Headquarters sponsored Corps-wide programs necessary to provide the capabilities and operational command and control required by Corps field commands in order to accomplish their NEPP responsibilities, both routinely and in specific emergency response situations.

USACE has both civil and military roles and missions in the United States. With the heightened importance of Homeland Security in the United States, the Department of Defense (DOD) is establishing the Northern Command and a special sub-unified command for response in the US (Joint Forces Headquarters for Homeland Security (JFHQ-HLS). Joint Forces Command (JFCOM) plays a critical role in training and exercising US forces worldwide and is also placing more emphasis on Homeland Security readiness. In addition, the Pacific Command (PACOM) is also placing additional emphasis on Homeland Security for Alaska, Hawaii, and US possessions. These four commands have important roles in consequence management operations in response to catastrophic disasters and terrorist weapons of mass destruction (WMD) events. USACE is placing liaison (LNO) engineer/planners with these four commands as part of its Field Force Engineering initiative. Given that these four commands have both military and civil roles, USACE is funding two LNO positions (NORTHCOM and JFHQ-HLS) with NEPP funds and funding two LNO positions (PACOM and JFCOM) with military funds. USACE has LNOs with seven other military commands and is funding those with military funds.

NEPP provides USACE with the ability to engage and coordinate readiness with other agencies at the National level on programs of Federal primacy or interests. USACE LNOs provide the aforementioned Joint commands with an engineer/planner knowledgeable in US civil infrastructure and USACE capabilities in order to assist those commands in effectively bringing their extensive capabilities to bear in major or catastrophic consequence management events.

The NEPP is complementary to the Flood Control and Coastal Emergencies (FCCE) appropriation. Although both programs are related to emergency situations, there is a distinct separation of responsibilities. The NEPP provides for the planning, training, and testing activities necessary to develop the capability to meet essential requirements associated with local continuity of operations and response(s)to scenario specific national/regional crises. The FCCE, on the other hand, provides preparedness and response related to emergency flood fighting, post-flood repair and restoration of flood and shore protection works damaged or destroyed by floods, hurricanes or wave action and Corps preparedness associated with Federal Response Plan mission requirements. In FY02, the USACE military readiness program was funded at $9.3M while its civil-funded National readiness program (NEPP) was funded at $3.8M. The restrictions on NEPP have caused certain imbalances with respect to USACE readiness. The HQUSACE Office of the Deputy Chief of Staff, Operations Plans Branch, which manages both military and national readiness, has eleven military readiness funded positions (FY02) and one civil funded position. This is due to previous Congressional guidance that no NEPP funds be used to fund readiness positions in the headquarters. This creates additional challenges involving inter-agency planning and readiness for possible attacks on Washington, DC and the role of USACE in national preparedness and response.

PROPOSED ACTIVITIES FOR FY 2004: The FY 2004 program will provide for continuing the implementation of the National Emergency Preparedness Program. The FY 2004 program will continue the process of catastrophic disaster planning and exercising to enable the Corps to rapidly respond to a broad spectrum of emergencies, with emphasis on natural disaster and terrorists events that have regional and national implications. An effort will be made to satisfy increasing demands on the program to support multi-agency (Federal, state, and local government) requests to exercise plans focusing on regional catastrophic natural and man made disasters. Increasingly, Federal, state and local agencies are looking to the Corps to take the lead in this area. Lessons learned from events such as the Midwest Floods of 1993, Hurricanes Hugo, Andrew and Iniki, the Loma Prieta and Northridge earthquakes, the South Pacific Division Earthquake Readiness Workshop, the Southwestern Division Regional Hurricane Readiness Workshop, the USACE Cascadia Subduction Earthquake Regional Readiness Workshop and the evolving New Madrid earthquake scenario, clearly indicate that the Federal Response Plan, while a solid system, does not contain enough detail to provide for a response to catastrophic disasters that is sufficiently timely or comprehensive. To overcome this, the Corps initiated a program that uses the deliberate planning process to develop scenario specific catastrophic disaster plans. This will result in more detailed planning and should provide for a more comprehensive response to national/regional catastrophic disasters to include terrorist attacks. More extensive coordination with Federal, state and local entities will be incorporated into plan development. In this regard, it is important to note that USACE plays a key role in national security planning such as the development of the National Capitol Region Response Plan and other contingencies with national implications. Specific plans for response to several different earthquake and hurricane events, to include the New Madrid Earthquake and New Orleans Hurricane, are continuing to be developed. Refining plans, to include input to the National Capitol Region Response Plan, development of additional plans, and conducting exercises within the scope of available funding will be the focus during FY 2004.

ACCOMPLISHMENTS IN PRIOR YEARS: An exercise during FY 01 was the USACE South Pacific Division Earthquake Readiness Workshop held in December 2000. Set against a backdrop of a catastrophic earthquake event occurring in southern California, federal, state and local government agency representatives worked closely with non-government organizations and industry representatives to work towards successfully simulate managing both the acute and long-term effects of the disaster posed by the scenario. The focus of the workshop was on elements related to Emergency Support Function #3 - Public Works and Engineering, of the Federal Response Plan. Following this exercise was the Southwestern Division Regional Hurricane Readiness Workshop in July 2001. This was also a significant exercise involving a Category 4 Hurricane making landfall in Galveston, Texas. This workshop strengthened partnerships and promoted mutual understanding of the roles, responsibilities, and interests of USACE, FEMA, other Federal agencies, and State and local governments involved in hurricane response. It provided an excellent opportunity to examine contingency plans, capabilities, and communications at federal, state and local levels. Region-specific issues were also identified and addressed. Additionally, the USACE Cascadia Subduction Earthquake Regional Readiness Workshop, involving a significant earthquake in the northwestern region of the US, was conducted in July 2002. Although the final after action report has not yet been completed, this exercise,

supported by the FEMA leadership, was also very successful and served to strengthen partnerships, and promote mutual understanding of the roles, responsibilities, and interests of USACE, FEMA, other Federal agencies, State and local governments and industry representatives.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

National Lewis and Clark Commemoration Coordinator

SUMMARIZED FINANCIAL DATA:

Estimated Total (FY 2002-2008) Program Cost	$2,762,000
Allocation Requested for FY2003	310,000
Allocation Requested for FY 2004	**310,000**
Increase of FY 2004 over FY 2003	0
Balance to complete after FY 2004	2,142,000

AUTHORIZATION: The 2002 and 2003 Energy and Water Appropriations acts.

JUSTIFICATION: The bicentennial commemoration of the Lewis and Clark Expedition is a significant nationwide event, which will begin in 2003 and continue through 2006. It is imperative that activities regarding this event at all levels of the Corps be coordinated. A National Bicentennial Council has been established; Federal, state, Tribe, and local governmental entities are planning the roles they will play in the commemoration. Political interest has also increased rapidly. Of the more than 5,000 miles of trail from Washington D.C. to the Pacific Ocean, the Corps directly or indirectly manages nearly 4,700 river miles, thus managing more of the trail than any other entity. By virtue of its role as administrator of large stretches of public land along the trail route, and its Army heritage of exploring and mapping of the western United States, the Corps will play a significant leadership role in the observance of the Lewis and Clark Expedition Bicentennial. The nature of this event will involve large numbers of the public traveling through numerous Corps local jurisdictions. FY 2004 is the key period to meet the expected increase in recreational visitation on the lower Ohio River and points west of the Mississippi River with six National Signature Events taking place in FY 2004. These events will require significant participation of local Corps sites, in accordance with expectations of local partners. The Lewis and Clark Coordinator is responsible for ensuring consistent agency-wide information on safety, traversing navigation structures (locks and/or dams), historic facts, and the geographic location of the Expedition's route. The Coordinator is also responsible for a consistent agency position in coordination activities with the large number of states, local communities and tribes planning local events either on or in close proximity to Corps projects. Coordinator is also responsible for continued coordination with the Army, State Governors' Lewis and Clark Committees, and other non-Army Federal agencies.

PROPOSED ACTIVITIES FOR FY 2004:

1. Continue to develop funding sources. Develop partnerships with groups such as Association of the US Army, Tread Lightly! and others. Use Challenge Partnership Program to develop potential partners. Seek out new and different funding sources (National Endowment of the Humanities, etc.) Establish partnerships with cooperative associations. Seek ways to accept corporate donations and other non-traditional types of funding. Seek financial assistance to support activities, facilities, and other identified needs.

2. Build partnerships. Maintain contacts with BIA and Tribal government designees. Continue contacts with State Governor's committees. Coordinate proposed Corps/Army efforts with other agencies. Work with state recreation and tourism initiatives to market this opportunity for cultural and heritage tourism. Work with Native Americans to ensure their story is interpreted according to their traditions. Identify tasks that could be co-sponsored or co-produced.)

3. Improve facilities and interpretation. Work with private and public organizations to improve public access and recreation infrastructure. Implement actions identified in management plans. Provide educational and interpretive opportunities for field and ranger staff. Develop strategy for participation in reenactment activities (i.e., rendezvous, demonstrations, costumed interpretation and festivals.)

4. Implement plans for Bicentennial activities. (Coordinate with commercial entities. Coordinate volunteer efforts.)

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Performance Based Budgeting Support Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	$1,770,000
Allocation Requested for FY 2003	815,000
Allocation Requested for FY 2004	**815,000**
Increase of FY 2004 over FY 2003	0

AUTHORIZATION: The Government Performance and Results Act of 1993 (GPRA) and under basic project authority in conjunction with general authorities contained in various laws.

JUSTIFICATION: The President's management agenda and GPRA requires that the Corps implement performance based budgeting for Civil Works Operations and Maintenance, General Program. The Performance Based Budgeting Support Program addresses this requirement by seeking new methods for linking performance to annual budget requests and for analyzing the potential economic impact of budget requests on customers.

1. **O&M Business Function Information**: Provides for the collection of Civil Works project and associated port and waterway facility infrastructure inventories and performance data. This infrastructure data can be made available for homeland defense. An automated national system supporting the O&M program has been developed to focus the total workforce on results-oriented management and performance-based budgeting. This work includes on-going development of automated processes to collect, process and distribute both national and local performance and output information for all O&M business functions. The continuing production involves program management, infrastructure inventory, maintenance and corporate distribution and analysis. This national system results in the ability of the entire O&M community, using a centrally maintained corporate O&M information system fed by transactional systems at the local through the national level, to recognize, verify and adjust the business processes to align with national goals. The outcome is an improved understanding of the relationship between budget versus results. This assists in mobilizing the total workforce to focus on results-oriented management and performance based budgeting. Also, these funds provide for the operations and maintenance of the deployed transactional systems such as: hydropower, recreation, environmental compliance and navigation, including data review and corrections. These activities also support the President's management initiatives of "Expanded Electronic Government" and "Budget and Performance Integration".

2. **O&M Performance Measurements**: Improvement of performance measurements to be incorporated into the budget decision- making process. Efforts focus on the refinement of corporate performance principles and program and project level performance measures that focus on anticipated performance and output at different levels of funding in accordance with the revised finance and accounting cost codes that now align with the five O&M business processes - navigation, hydropower, flood damage reduction, recreation and environmental stewardship. These measurements, at different organizational levels, provide the analytical basis to make adjustments in priorities both at the program and project levels concerning efficiency of facilities or services. Comparison of measurements among projects at all levels helps focus management attention on corrections of program or project deficiencies.

3. **O&M Business Analysis**: This task analyzes data using statistical and other analytical techniques and tools to uncover relationships among budget, expenditures and performance within and between Corps business processes. The relationships and statistics drawn from the data may provide evidence to support an increase in expenditures to improve performance. This task will also develop effective graphics to explain relationships found in the data and allow decision-makers to visualize cause and effect. This task links the data gathering, collection and distribution, and use of data in the decision-making process.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

PROPOSED ACTIVITITIES FOR FY 2004: With requested FY 2004 funds will provide minimal support of Civil Works O&M automated information systems and infrastructure data collection.

ACCOMPLISHMENTS IN PRIOR YEARS: Fielded centralized recreation, hydropower, environmental compliance collection systems and trained all users in data entry and access. Became the source for most Civil Works budget performance data in lieu of separate data calls.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Recreation Management Support Program (RMSP)

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$1,545,000
Allocation Requested for FY 2003	1,545,000
Allocation Requested for FY 2004	**1,545,000**
Increase of FY 2004 from FY 2003	0

AUTHORIZATION: This program is conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

JUSTIFICATION: The recreation program serves over 375 million recreation visitors and generates over $34 million in revenue annually. Visitors spend over $12 billion annually to engage in recreation at Corps projects; over 500,000 full and part time jobs are associated with this spending. The RMSP supports the recreation program through the conduct of focused management studies to improve operational efficiencies and the provision of technical assistance, to include technology transfer and technology support and maintenance for recreation specific automated information systems. The RMSP supports strategic planning for and performance monitoring of the Corps recreation business program, subject to the Government Performance and Results Act (GPRA).

The RMSP has 3 major components, which together provide comprehensive support to the Corps Recreation Business Function:

1. Focused Management Studies. RMSP provides focused management studies and reports to acquire and analyze information about recreation trends, accessibility, emerging issues, user conflicts, visitor diversity, use fee impacts and similar elements affecting the Corps recreation program. Analyses to assist in conducting the recreation area modernization program, implementing facility and service standards, and in similar product delivery improvement efforts. Information and technology transfer pursuant to these studies is funded by the RMSP.

2. Management/Technical Assistance. RMSP provides technical assistance to projects for management tools, which quantify recreation program outputs and relate them to customer needs and budget allocations for the purpose of measuring performance. This includes gathering and analyzing information about customer satisfaction with the Corps recreation program. RMSP assures the field workforce is equipped with "state-of-the-art" skills and knowledge to deal with a rapidly changing public. RMSP provides technical support and maintenance for visitation collection and analysis, fee collection and reporting, economic analysis, inventory, and similar automated information programs. RMSP provides short-term assistance to projects in solving specific technical problems.

3. Support to Recreation Program Strategic Planning. Funding to support the activities of the Recreation Leadership Advisory Team (RLAT). The Team is composed of representatives from the division, district and project levels of the Corps natural resources management program. It provides input, advice and support to the Corps strategic planning for the recreation business program.

PROPOSED ACTIVITIES FOR FY 2004: Demonstrations will be conducted to identify and quantify the benefits of the Corps recreation program and improve effectiveness in addressing the needs of ethnic minority visitors. Emphasis will be placed on improving communications strategies with non-English speaking visitors. Analysis of carrying capacity studies will be completed and guidance regarding monitoring and addressing water based carrying capacity will be provided to the field. Studies will begin to improve recreation use monitoring procedures that take advantage of existing information resources to increase reliability while reducing level of effort. Technical support will be provided to field staff to implement improved procedures. The Natural Resources Management Gateway will be transformed into a fully functional Knowledge Management (KM) tool to improve ease of use and effectiveness, compatible with other Corps KM initiatives. Gateway development will integrate best practices to improve customer satisfaction and other GPRA performance measures. Recreation facility and service

standards will be integrated fully into appropriate sections of the Gateway. Guidance and appropriate tools will be developed to improve interpretive services associated with the CE recreation program that advance the public's understanding of the environment and the Corps Environmental Operating Principles. Efforts will continue to work with NGOs and other stakeholders to develop and launch Project Young Environmental Stewards (Y.E.S.). Support will be provided to the refinement of the recreation business program strategic plan, utilizing input from the RLAT and stakeholders. Goals and objectives will be refined, and actions will be identified to achieve them. Innovative partnership approaches will be developed and field guidance prepared to improve stakeholder participation. Stakeholder outreach will be conducted to develop partnerships for strategic initiatives.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Regional Sediment Mngt Demonstration Program

SUMMARIZED FINANCIAL DATA:

Estimated Total Program Cost	$15,000,000
Allocation Requested for FY 2003	1,545,000
Allocation Requested for FY 2004	**1,545,000**
Increase of FY 2004 Over FY 2003	0
Balance to Complete after FY 2004	7,910,000

AUTHORIZATION: Regional Sediment Management (RSM) studies are authorized by Section 516 of WRDA 96.

JUSTIFICATION: The Demonstration Program goals are to link the management of authorized Corps projects with one another, leverage data collection and shoreline management activities with other Federal agencies, State and local governments, within the limits of a regional watershed system (including uplands, rivers, estuaries and bays, and the coast). The purpose is to demonstrate short and long term cost savings and increased economic and environmental benefits of maintaining sediments within their regional system and using sediments to sustain a balanced environment.

PROPOSED ACTIVITIES FOR FY 2004: Publish "RSM" Primer, a guidance document for Corps personnel and partners that explains Regional Sediment Management and its implementation. Complete "Summary and Lessons Learned" reports for RSM demonstrations at Northeast Florida, New York, and southeast shore of Lake Michigan. Implement RSM concepts at Division/Management Support Command level.

ACCOMPLISHMENTS IN PRIOR YEARS: Mobile District (SAM) completed their 3-year RSM demonstration projects with an estimated cost savings of $9.4 million. A demonstration at East Pass was completed in FY 02 with collaboration with the United States Air Force, and is being monitored to determine benefits to the region. The cooperation among Federal agencies and the collaboration among the three levels of government have been the greatest accomplishments to date. Because of the RSM demonstration project data and model results, SAM was able to propose a feasibility study that reduced the study time period from six to three years, and the cost by $2 million. In FY 2003, SAM completed a "Summary and Lessons Learned: Northern Gulf of Mexico RSM Demonstration" report for their demonstration project. Demonstration Projects are underway in northeast Florida, New Jersey, New York, the southeast coast of Lake Michigan, and southern California. The New Jersey and New York projects featured collaboration with the US Geological Survey, the Minerals Management Service, the National Ocean Service, and the National Environmental Satellite Data and Information Service in mapping and managing offshore sediment resources as well as nearshore processes. The Lake Michigan project features close coordination and cooperation with the Corps regulatory program and the states of Michigan and Indiana. The southern California project links the efforts of the state and numerous beach communities from Dana Point to Del Mar. The northeastern Florida project links several navigation projects with shore protection projects in conserving sand. In FY 03, a demonstration project began at the Columbia River estuary to reduce O&M costs incurred through dredging, placement, and beach erosion.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Reliability Models Program For Major Rehab.

SUMMARIZED FINANCIAL DATA:

Estimated annual Cost for Continuing Program	$675,000
Allocation Requested for FY 2003	675,000
Allocation Requested for FY 2004	**675,000**
Increase of FY 2004 from FY 2003	0

JUSTIFICATION: The purpose of this program is to respond to yearly needs of Districts and Divisions that are preparing Major Rehabilitation reports for the upcoming fiscal year. The objective of the program is to provide reliability models for project features or components that are being considered for Major Rehabilitation, or to provide procedures to consider the impact of various chemical, environmental or physical processes in a reliability analysis.

PROPOSED ACTIVITIES FOR FY 2004: The requested funds will be used to prepare reliability models and collect data for reliability analyses anticipated to be required by several Districts. Reliability models and/or data are anticipated to be needed for the following: Completion of a reliability model for seepage through embankment dams and levees will continue; Completion of a screening level tool for the districts to use to prioritize major rehabilitation and dam safety projects; Evaluation of data collected on performance of dam gates, to determine performance modes and verify load cycles used in reliability analyses, and electrical/mechanical systems model for locks and dams. Provide reliability analysis procedures for selected hydropower equipment. It is also anticipated that two rehabilitation workshops would be conducted. The makeup of these units is subject to the needs of the respective Districts and Divisions.

ACCOMPLISHMENTS IN PRIOR YEARS: Reliability models and other analytical tools have been provided in support of Major Rehabilitation reports on numerous navigation and hydropower projects. In addition, 18 rehabilitation workshops have been conducted in the last 10 years to provide assistance to the Districts as they prepare their reports. These workshops offer guidance in conducting reliability and risk analyses, and provide the opportunity for interdisciplinary teams from the Districts to discuss their particular project with HQUSACE and other Districts personnel.

APPROPRIATION TITLE: Operation and Maintenance, General -- Fiscal Year 2004

Water Operations Technical Support (WOTS)

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$1,000,000
Allocation Requested for FY 2003	725,000
Allocation Requested for FY 2004	**725,000**
Increase of FY 2004 over FY 2003	0

JUSTIFICATION: Maintaining the environmental and water quality conditions at 562 reservoirs (5,500,000 surface acres), 237 navigation locks, 926 harbors, 75 hydropower projects, and 25,000 miles of inland and coastal waterways impacted by the operation of Corps projects requires compliance with numerous statutes and state standards. Providing the technology and knowledge base necessary to address the general non-project specific environmental and water quality needs of project operations can best be accomplished through a comprehensive centralized program that will maximize cost effectiveness, and ensure broad dissemination and implementation of technology and information.

PROPOSED ACTIVITIES FOR FY 2004: The WOTS Program provides effective environmental and water quality engineering technology to address a wide range of water resource management problems at Corps reservoir and waterway projects, and in river systems affected by project operations nationwide. The program provides technology to address: problems caused by Zebra Mussels and other invasive aquatic species; tailwater fisheries concerns at pump-back hydropower projects; water quality impacts of land use, sediment and nutrient loadings, erosion, and reservoir sedimentation; and project operations related to environmental and water quality issues.

WOTS provides technical support to Corps' mission-related project responsibilities, with special emphasis on the transfer of technology. The program ensures that the technologies developed by the Corps and other Federal agencies are current and readily available to all Corps field offices. The effective use of technologies is secured through field demonstrations, specialty workshops, publication of information bulletins, technical notes, executive notes, technical reports, miscellaneous papers, instruction manuals, videos, meetings, seminars, briefings at field offices, congressional testimony, and the Internet.

ACCOMPLISHMENTS IN PRIOR YEARS: Since its inception in FY 1985, WOTS has provided environmental and water quality technological solutions to over 1,300 problems identified at projects from every Corps District. The program annually publishes and distributes numerous copies of manuals, bulletins, notes, and reports. WOTS annually conducts specialty workshops, training personnel on the latest environmental and water quality management techniques. In FY 2003, the WOTS program successfully responded to 80 direct technical assistance requests from 31 Corps Districts, conducted six technology demonstration efforts to verify management strategies and techniques, conducted six training workshops on environmental and water quality management techniques, and prepared 12 technical publications for distribution to the field.

A continual endeavor of the WOTS program is coordination with water quality and environmental elements of other Federal agencies such as the Environmental Protection Agency, Tennessee Valley Authority, Bureau of Reclamation, Fish and Wildlife Service, U.S. Geological Survey, and the Bonneville Power Administration. These efforts have involved watershed management activities, problems related to the spread of Zebra Mussels, environmental impacts of hydropower facilities, and impacts of water releases in tailwater areas on fisheries.

APPROPRIATION TITLE: Regulatory Program, FY 2004

AUTHORIZATION: Rivers and Harbors Act of 1899, Sections 9, 10 and 13
Clean Water Act, Section 404
Marine Protection, Research and Sanctuaries Act, Section 103

SUMMARIZED FINANCIAL DATA:

Budget Request for Fiscal Year 2004	$144,000,000
Budget Request for Fiscal Year 2003	$144,000,000
Increase in FY 2004 over FY 2003	0

JUSTIFICATION:

Background. The Corps of Engineers has been regulating certain activities in the Nation's waters since 1890. Most of the authority for administering the program has been delegated to the district and division commanders. National public awareness of the aquatic environment, including wetlands, and the involvement of state and Federal resource agencies continue to grow. In 1993, an interagency plan was initiated to improve management and protection of the nation's wetlands. The Corps has implemented many aspects of the plan, designed to improve the efficiency and effectiveness of the Corps Regulatory program. Some changes have enhanced efficiency, allowing the Corps to respond more quickly to permit applicants, while others have improved its ability to ensure protection of the aquatic environment. The general permit program is designed to reduce Federal regulation of activities with only minimal adverse impacts on the aquatic environment and to eliminate duplication of effort with state and local governments. The Corps works with state, tribal, and local governments to develop mechanisms that give them greater responsibility for aquatic resources including wetland regulation. This is achieved primarily through programmatic and regional general permits but also includes joint permit applications and processing procedures as well as work-sharing agreements. States may assume Section 404 authority (in non-navigable waters) where the state or local regulatory program is able to implement appropriate regulatory controls. Since 1984, only Michigan and New Jersey have chosen to assume this aspect of the program.

APPROPRIATION TITLE: Regulatory Program, FY 2004 (continued)

Types of Activities Regulated by the Corps.

a. Construction and other work in waters of the United States including wetlands;
b. Construction of fixed structures and artificial islands on the outer continental shelf;
c. Discharges of dredged or fill material, including those associated with construction and land-clearing activities, into the waters of the United States including wetlands;
d. The transportation of dredged material for the purpose of disposal in ocean waters.

Evaluation Criteria. The decision whether to issue a permit is based on an evaluation of the probable impacts of proposed activities on the public interest. In order to issue a permit, district commanders must determine that activities are not contrary to the aquatic environment. In addition, for Section 404 permits, the Corps must determine compliance with the Clean Water Act, Section 404 (b)(1) guidelines.

ACCOMPLISHMENTS: In FY 02, the Corps authorized over 82,000 activities in writing. Of these, 90 percent were authorized by regional and nationwide general permits and the remaining 10 percent by individual permits. The Corps continues to depend on its nationwide permit program to help manage its regulatory workload. Without regional and nationwide general permits, all activities would have to be intensively evaluated as individual permits. Although the evaluation process for an individual permit is typically greater than that for a general permit, most regional and nationwide authorizations now involve substantive evaluation and determination of necessary mitigation. In January 02, the Corps announced revisions to its nationwide permit program to protect aquatic resources while streamlining the approval process for some applicants. In December 02, the Corps and other Federal wetland agencies initiated implementation of a national wetlands mitigation action plan to improve the ecological performance and results of compensatory mitigation under the Clean Water Act and related programs. This plan emphasizes watershed approaches and use of wetlands functions and values in determining impacts and mitigation.

The Corps continues to protect the nation's aquatic environment, while working to provide fair and equitable decisions in a reasonable period of time. Because of a nearly 50-percent increase in the total number of written permit authorizations since the early 1990's as well as increasing program review requirements and legal challenges, the Corps has not been able to maintain its evaluation time for permit actions. In FY 02, 88% of all actions were authorized in less than 60 days, a decline from 94% in FY 98. Also, in FY 02, 61% of standard individual permits (the most complex permits) were completed within 4 months, compared to 80% in FY 98. Although these performance figures did not show declines in FY 02 from FY 01, the average time to review individual permits rose from 149 days in FY 01 to 161 days in FY 02. In addition to the permit evaluation process, the Corps made over 69,000 jurisdictional determinations in FY 02, an all time high. This is partly due to public uncertainty about the program's jurisdiction in non-navigable, intrastate, isolated waters following a 2001 Supreme Court decision. This decision resulted in a need for additional determinations as well as more in-depth reviews to make jurisdiction determinations. In January 03, the Corps and the US EPA issued joint policy guidance on this issue intended to help clarify jurisdiction for these waters. Also in January 2003, the Corps and US EPA issued an advance notice of proposed rulemaking on this issue.

APPROPRIATION TITLE: Regulatory Program, FY 2004 (continued)

FISCAL YEAR 2004: The request of $144 million is the same as the request for FY 03. This funding will allow continuation of efforts to be more responsive to the regulated public while continuing to ensure the protection of the aquatic environment as required by law. The funding amount allows progress toward the goal of 120 days as the average time to complete evaluation of standard permits. Additional funds are being allocated under the enforcement program toward inspections of permitted activities to improve mitigation oversight. The Corps is working with federal partners including EPA on the National Wetlands Mitigation Action Plan, a five-year comprehensive effort to improve compensatory mitigation. A major part of this effort is studies to look at impact analysis and mitigation from a holistic watershed approach. Study efforts will continue to develop watershed approaches that can consider impacts in entire aquatic ecosystems to help expedite permit actions and help manage aquatic resources in sensitive areas. Where these watershed studies and evaluations of the impacts of future permits in an aquatic system are undertaken, permit evaluation workload can be greatly reduced.

Other program management efforts will continue, including specialized training of Corps personnel and technical assistance to Corps districts by the Engineer Research and Development Center (ERDC). Generally, from $500,000 to $1,000,000 is allocated to ERDC each year for its technical assistance with complex and sensitive permit cases. In addition, a similar funding amount may be allocated to the Institute for Water Resources to address special program management issues such as studies of mitigation banking, improvement of data systems to track program workload and wetland acreage, and assessment of impacts due to program changes. Funds also will be used to pay for the review of environmental impact statements by Corps districts.

The $144 million will be applied as follows:

Permit Evaluation	$ 113,000,000
Enforcement, Compliance and Resolution	$ 24,000,000
Administrative Appeals Process	$ 1,000,000
Studies and Wetlands Technical Support	$ 5,000,000
Environmental Impact Statements	$ 1,000,000
TOTAL	$ 144,000,000

APPROPRIATION TITLE: Flood Control and Coastal Emergencies (FCCE), FY 2004

SUMMARIZED FINANCIAL DATA:

Rescission, FY 2002	-$25,000,000
Estimated Annual Appropriation, FY 2003	$22,000,000
Budget for FY 2004	$70,000,000

DISASTER PREPAREDNESS AND EMERGENCY RESPONSE: The U.S. Army Corps of Engineers plays an important role in support of the Federal response to natural disasters throughout the United States. In that regard, the Corps must maintain a preparedness program that ensures the agency is ready to respond to the needs of the Nation. The prudent management of FCCE funds ensures that mobilizing people and materials, obtaining contractor support, and coordinating with other agencies involved in emergency events are accomplished on an expedient, "24/7" immediate response basis. This response can be under Corps authorities, such as P.L. 84-99, 33 USC 701n, Flood Control and Coastal Emergencies, or in support of other agencies, particularly the Federal Emergency Management Agency (FEMA) under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 USC 5121 et seq. Activities under P.L. 84-99 authority include the following: preparedness activities; emergency operations (flood response and post-flood response); emergency repair and restoration of flood control works which are threatened, damaged or destroyed by flood; emergency protection of existing Federal hurricane and shore protection works; the repair or restoration of Federal hurricane or shore protective structures damaged or destroyed by wind, wave or water action of other than ordinary nature; preventive work performed prior to unusual flooding that poses a threat to life or property; providing emergency supplies of clean water following a natural disaster where a source of contaminated water is causing or likely to cause a substantial threat to public health and welfare; and provision of water supplies to drought-distressed areas by reimbursable well drilling or transportation of water at Federal cost.

Included in the funds for these emergency activities are overtime pay for Headquarters staff, travel to support disaster response and recovery operations, supplies and materials, increased staff support from field activities, and Remote Sensing/Geographic Information System (RS/GIS) services to support field operations. In the event that the response to a recovery from emergency depletes FCCE funds, the Secretary of the Army is authorized to transfer funds from other appropriations temporarily, to finance additional response and recovery costs pending additional FCCE appropriations.

APPROPRIATION TITLE: Flood Control and Coastal Emergencies (FCCE), FY 2004

ACCOMPLISHMENTS: The Corps of Engineers has successfully prepared for and responded to a wide array of significant natural disasters. Its VISION-2006 (V-6) initiative builds upon the Readiness 2000 concept for disaster response by developing strategies for capability sustainment and improvement, comprehensive partnering, integrated program management, and research and development. Major disaster response efforts were successfully completed for flood events in the upper Mississippi River, South Central Texas, and Virginia / West Virginia; Typhoons Chataan and Pongsona in the Western Pacific Ocean; Arizona wildfires; Tropical Storm Isidore, Louisiana; Hurricane Lili, Louisiana; and technical assistance for drought in the States of North Carolina, Virginia, and Arizona. Recovery activities for rehabilitation of damaged flood control works are continuing at various locations throughout the continental United States. Other initiatives such as the concept for advance contracting make the Corps more responsive and efficient in disaster related work. Development and maintenance of these and other capabilities are critical to continued success.

Major preparedness efforts include the review and updating of response plans based on lessons learned from recent disasters; training of personnel and teams to develop critical skills which enhance the capability to respond under adverse conditions; procurement and prepositioning of critical supplies and equipment (i.e., sandbags, pumps) which likely would be otherwise unavailable during the initial response stages; periodic exercises to test and evaluate plans, personnel, and training; inspection of non-Federal flood control projects to ensure their viability to provide flood protection and assess their eligibility for post-flood rehabilitation; laboratory support for field operations; liaison with state and local governments and agencies; and effective management to ensure workable, coordinated efforts that will meet the needs of disaster victims. The funding identified under All-Hazards Preparedness Activities reflects expanded national and regional planning, training and coordination to support Federal response to all natural disasters. This includes disasters under the umbrella of the Federal Response Plan.

FISCAL YEAR 2004: The Budget funds this program at $70 million, a 250 percent increase over FY 03. This is the program's 10-year average cost. These funds are needed to reduce the risk of disrupting other Corps programs when the Corps responds to emergencies, and to reduce reliance on supplemental funding. The decision to seek this increase is an outcome of an analysis using the Program Analysis Rating Tool (PART). The $70,000,000 requested for FY 04 will provide for the following preparedness activities:

Disaster Preparedness	$ 25,000,000
Emergency Operations	$ 13,000,000
Rehabilitations and Levee Inspections	$ 23,000,000
Emergency Water and Drought	$ 1,000,000
Advance measures	$ 8,000,000
Total Preparedness Program, FY 2004	$ 70,000,000

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004
($000)

State Project Name	Allocated through FY 2003	FY 2004 Request	Remaining Requirement*
Connecticut			
CE, Windsor, CT	8,167	250	21,583
Iowa			
Iowa Army Ammunition Plant, Middletown, IA	125	300	TBD
Maryland			
W. R. Grace, Baltimore, MD	10,680	1,000	34,952
Massachusetts			
Shpack Landfill, Norton, MA	6,028	1,950	2
Missouri			
Downtown, St. Louis, MO	120,902	16,000	15,840
Latty Avenue, St. Louis, MO	65,132	2,500	82,525
St. Louis Airport Vicinity Properties, St. Louis, MO	39,062	1,500	95,777
St. Louis Airport, St. Louis, MO	183,247	30,000	23,030
New Jersey			
Dupont Chambers Works, Deepwater, NJ	8,475	2,000	14,200
Maywood, NJ	222,165	26,820	115,095
Middlesex, NJ	75,153	2,570	16,348
Wayne, NJ	121,339	200	1,650
New York			
Ashland 1, Tonawanda, NY	68428	10,400	18,185
Colonie, NY	145,482	9,610	4,910
Linde Air Products, Tonawanda, NY	109,368	17,000	10,630
Niagara Falls Storage Site, NY	36,823	6,000	311,850
Seaway Industrial Park, Tonawanda, NY	8,584	700	16,092
Ohio			
Former Harshaw Chemical Company, Cleveland, OH	3,615	1,500	38,180
Luckey, OH	15,929	1,000	134,310
Painesville, OH	13,920	5,000	580
Pennsylvania			
Shallow Land Disposal Area, Parks Township, PA	2,830	2,700	TBD
Potential Sites		1,000	
	1,265,454	140,000	955,735

*The remaining requirement, except as indicated on individual justification sheets, is based on cost estimates developed during the spring of 1998 to validate initial Corps estimates in the Report to Congress. As in the case of the estimates in the Report to Congress, these estimates assume acceptance of criteria for remediation which, while fully protective of human health and the environment also strike an appropriate balance among cost, regulatory and community acceptance, and land use considerations. They also assume funds are provided to support the optimal remediation schedules. The actual remaining requirement may range from $790,000,000 to $1,430,000,000.

CONNECTICUT

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
Combustion Engineering, Windsor, CT New England District	29,700,000 - 42,790,000*	7,917,000	250,000	250,000	21,280,000 – 34,370,000

The Combustion Engineering (CE) site is a 600-acre area in Windsor, Connecticut. CE, under contract to the Atomic Energy Commission (AEC), fabricated nuclear fuel assemblies using highly enriched uranium (HEU) from 1958 to 1961. CE also conducted licensed commercial nuclear activity on the site from the early 1960's to 1993. Although the commercial nuclear fuel fabrication ceased in 1993, CE is still licensed by the Nuclear Regulatory Commission (NRC) for other commercial nuclear activities and the facility is still operating today. HEU is the primary radiological contaminant of concern at the site, which may be addressed by Formerly Utilized Sites Remedial Action Program (FUSRAP). Only limited site characterization work had been performed when FUSRAP was transferred from the Department of Energy (DOE) to the Corps for execution. Since then, the Corps has performed a gamma survey of the site, completed site characterization (SI), completed an investigation action at the "Rapaport Building," and is currently preparing an RI/FS report.

Fiscal Year 2003 funds are being used to complete the feasibility study, initiate preparation of a Record of Decision, and continue potentially responsible party discussions. Funds requested for Fiscal Year 2004 will be used for project management and Quality Assurance activities associated with RD/RA potentially being accomplished by the responsible party.

The schedule for completion of site remediation is to be determined.**

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. Responsible party with Corps oversight may do remedial action.**

****The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

IOWA

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
Iowa Army Ammunition Plant, Middletown, IA St. Louis District	TBD*	125,000	0	300,000	TBD*

The Iowa Army Ammunition Plant (IAAAP) is a secured, operational, Army -owned facility located on approximately 19,100 acres near Burlington in Des Moines County, in southeastern Iowa. During its use as an Army facility, portions of the IAAAP were occupied by tenant organizations including the Atomic Energy Commission. From 1947 to 1975, the Atomic Energy Commission (AEC) operated areas of the plant as the Burlington Atomic Energy Commission Plant. (BAECP). In 2002 a Preliminary Assessment was completed for the BAECP. The purpose of the Preliminary Assessment was to collect and review information to determine if a release or threat of release of an AEC- related hazardous substance occurred. The Preliminary Assessment included a review of AEC historical documents, site visits, examination of the results of an indoor radiological survey and performance of a limited radiological walkover survey at two firing site areas. The Preliminary Assessment found evidence of a release and recommended additional investigation to determine the nature and extent of AEC associated contamination. It is believed that approximately 1,600 acres within the IAAAP have been potentially impacted by Atomic Energy Commission (AEC) operations. Limited survey data and existing sampling data (from other Army activities) indicates radiological (primarily depleted uranium), chemical, and explosives contamination exists. Potentially impacted media include soils, groundwater and surface water. The nature and extent of this contamination will be investigated and defined during the Remedial Investigation (RI), which is the next step in the planning process. The primary regulators/stakeholders include the Environmental Protection Agency Region VII, Iowa Department of Public Health, Iowa Army Ammunition Plant (Army) and the IAAAP Restoration Advisory Board. The site was placed on the National Priority List in 1990. In FY 2002, the Corps received designation of the IAAAP into FUSRAP.

No funds were programmed for FY 2003 because the site was added after the FY2003 budget cycle. FY 2004 funds will be used to begin the Remedial Investigation of the site.

***A preliminary cost estimate for site remediation will be determined at completion of the Remedial Investigation phase.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 North Atlantic Division

MARYLAND

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
W.R. Grace, Baltimore, MD Baltimore District	41,970,000 – 55,960,000*	8,530,000	2,150,000	1,000,000	30,290,000 – 44,280,000

The W.R. Grace site is situated within a 260-acre property owned by Grace, located on an industrialized peninsula in south Baltimore. Currently, Grace manufactures and produces specialty chemicals at this facility. Contamination at the site consists of radioactively contaminated slabs and other surfaces impacted by the thorium extraction process in Building 23, which is still used by Grace, and the Radioactive Waste Disposal Area (RWDA) to the east of the plant proper. The Department of Energy (DOE) conducted radiological surveys at the site, but no actual characterization or remediation was performed. To date the Corps has removed containerized waste previously stored in Building 23 and initiated remedial investigations/feasibility studies (RI/FS) at the radioactive waste disposal area (RWDA) and Building 23. In FY2002 a draft Remedial Investigation (RI) for Building 23 was developed for coordination with the state regulators.

FY 2003 funds are being utilized to finish the RI report and draft the Feasibility Study Report (FS) for Building 23, and continue to develop the RI/FS for the RWDA. The funds requested for FY 2004 will be utilized to continue and complete the RI/FS and to finalize the Record of Decision (ROD) for both Building 23 and the RWDA.

The schedule for completion of site remediation is to be determined.**

*** The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

MASSACHUSETTS

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
Shpack Landfill, Norton/Attleboro New England District	9,978,000 – 10,380,000*	5,028,000	1,000,000	1,950,000	2,000 – 1,598,000

The Shpack site is an 8-acre abandoned domestic and industrial landfill, which operated from 1946 to 1965. It is located along the Norton/Attleboro town boundary line with approximately 5.5 acres in Norton and 2.5 acres in Attleboro. The Town of Norton and Attleboro Landfill, Inc. owns the property. FUSRAP-related radioactive contamination is believed to have come from Metals and Controls, Inc. (now Texas Instruments), which had used the landfill to dispose of trash and other materials from 1957-1965. The General Plate Division of Metals and Controls began to fabricate enriched uranium foils at their Attleboro plant in 1952. In 1959 it merged with Texas Instruments, which continued the operations until 1981, using enriched and natural uranium for the fabrication of nuclear fuel for the U.S. Navy and commercial customers. The site was also listed on the National Priority List (NPL) in 1986, primarily to address other contaminants on site. The Environmental Protection Agency (EPA) has signed an Administrative Order by Consent with a group of Settling Parties (which includes Texas Instruments) for the performance of a remedial investigation/feasibility study (RI/FS). Through Fiscal Year 2002, the Corps has completed a gamma walk-over survey, site characterization, potentially responsible party (PRP) investigations, and coordinated with other responsible parties and EPA.

Fiscal Year 2003 funds are being used to complete an Engineering Evaluation/Cost Analysis (EE/CA). Fiscal Year 2004 funds will be used to perform a removal action.

Site remediation is scheduled to be completed in September 2004. Funds required after Fiscal Year 2004 will be used to coordinate with EPA while they complete clean-up of the site under the Superfund Program.

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in an Action Memorandum, it will be possible to provide a more definitive estimate.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 Mississippi Valley Division

MISSOURI

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
St. Louis Downtown Site St. Louis, MO St. Louis District	152,742,000	104,902,000	16,000,000	16,000,000	15,840,000

The St. Louis Downtown Site and vicinity properties are located in St. Louis, Missouri. The site is comprised of an operational chemical manufacturing facility (Mallinckrodt Inc.) and 36 surrounding properties used by a variety of interests for industrial, and commercial purposes. The primary contaminants of concern are radium-226, thorium-230, uranium-238, progeny, metals, and organic compounds. The extent of contamination includes 17 acres where contaminated soils are accessible for remediation (17 buildings, subsurface soil, and vicinity properties). The primary regulators/stakeholders include the U.S. Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. In 1998, a Record of Decision (ROD) for Accessible Soils was signed to allow the removal of approximately 87,000 cubic yards of contaminated soils. In FY 2002, in accordance with the Record of Decision, the Corps continued remediation at Plant 1, began remediation at Plants 6 East/6 East-Half and Midwest Waste (DT-7), and completed pre-design investigation and design for several other vicinity properties. A total of 13,290 cubic yards of contaminated soils were remediated. The total estimated Federal cost shown above does not reflect possible costs of addressing contamination in inaccessible soils. A Potentially Responsible Party investigation is underway.

FY 2003 funds are being used to complete remedial designs and remediate approximately 13,000 cubic yards from Plant 7 East, Plant 6 East / 6 East Half and two vicinity properties. Additionally, development of the Feasibility Study/Proposed Plan for inaccessible soils will be initiated. FY 2004 funds will be used to continue development of the Feasibility Study/Proposed Plan for inaccessible soils, complete remedial designs for two vicinity properties, and remediate approximately 13,000 cubic yards from Plant 7 and two vicinity properties.

The schedule for completion of the site remediation is to be determined.**

**** The completion schedule will depend on the recommendation of the Record of Decision for inaccessible soils and overall funding constraints.**

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
Latty Avenue Properties, Hazelwood Interim Storage Site, MO St. Louis District	135,140,000-180,190,000*	60,132,000	5,000,000	2,500,000	67,510,000 – 112,560,000

The Latty Avenue Properties site is comprised of several different tracts of land in North St. Louis County, Missouri. The project includes an 11-acre site, encompassing the Hazelwood Interim Storage Site and FUTURA Coatings on Latty Avenue, and the Latty Avenue Vicinity Properties, which are at various nearby locations. The Hazelwood Interim Storage Site and FUTURA Coatings were placed on the National Priority List in 1989. The primary contaminants of concern are radium-226, thorium-230, and uranium-238. Surface and subsurface soils are known to be contaminated at levels, which pose an unacceptable human health risk based on projected future land use scenarios. The primary regulators/stakeholders include the Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. Potentially Responsible Party investigations are ongoing. In FY 2002 the remainder of the Hazelwood Interim Storage Site pile was removed, preliminary design investigation was completed at an adjacent vicinity property and development of the draft Feasibility Study/Proposed Plan continued for final cleanup of the area comprising the St. Louis Airport and Vicinity Properties and Latty Avenue sites (North County Sites).

FY 2003 funds are being used to perform design work and remove approximately 500 cubic yards of contaminated material, complete the Feasibility Study/Proposed Plan, and begin work on the Record of Decision for the North County Sites. FY 2004 funds will be used to complete the Record of Decision, perform design work, and remediate approximately 2,000 cubic yards.

The schedule for completion of site remediation is to be determined.**

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 — Mississippi Valley Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
St. Louis Airport Site, Vicinity Properties, St. Louis, MO St. Louis District	122,700,000 – 163,660,000*	36,562,000	2,500,000	1,500,000	82,140,000 – 123,100,000

The St. Louis Airport Site (SLAPS) Vicinity Properties consists of 78 properties in North St. Louis County, Missouri. The contaminated sites include former ball fields (located directly north of SLAPS), areas along haul roads, and Coldwater Creek. The primary contaminants of concern are radium-226, thorium-230, and uranium-238. Dispersion of radioactive material occurred either through direct migration from SLAPS via air or water, or through vehicular distribution along the roadways. (This is the case for most of the roadway, shoulder, and ditch contamination.) The properties are used for residential, commercial, industrial, recreational and transportation (road easement) purposes. The primary regulators/stakeholders include the Environmental Protection Agency, Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. A Potentially Responsible Party investigation is underway. As of the end of FY 2002, 34 of 78 properties had been completed or substantially completed under an existing Engineering Evaluation/Cost Analysis. Additionally, remedial design was completed for several additional properties; and development of the draft Feasibility Study/Proposed Plan continued for the SLAPS Vicinity Properties, together with the Latty Avenue and St. Louis Airport Sites (North County Sites). Completion of the Vicinity Properties Sites will require the removal of an additional 111,000 cubic yards of contaminated material.

FY 2003 funds are being used to perform characterization and design work on several vicinity properties, complete the Feasibility Study/Proposed Plan, and begin work on the Record of Decision for the North County Sites (including the Latty Avenue and St. Louis Airport Sites). FY 2004 funds will be used to complete the Record of Decision, perform design work, and remediate approximately 1,000 cubic yards.

The schedule for completion of the site remediation is to be determined.**

*** The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 — Mississippi Valley Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
St. Louis Airport Site, St. Louis, MO St. Louis District	236,280,000 – 283,540,000*	156,247,000	27,000,000	30,000,000	23,030,000 – 70,290.000

The St. Louis Airport Site (SLAPS) consists of 21.7 acres north of Lambert International Airport in North St. Louis County, Missouri. The site contamination is bordered by McDonnell Boulevard on the north and east, Coldwater Creek on the west, Banshee Road and Norfolk and Western Railway on the south. The ditches immediately adjacent to the north and south of SLAPS are considered part of this location. The primary contaminants of concern are radium-226, thorium-230, and uranium-238. The St. Louis Airport Authority owns the property. The primary regulators/stakeholders include the U.S. Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. A Potentially Responsible Party Investigation is underway. The site was placed on the National Priority List in 1989. In FY 2002, the Corps performed design work, removed approximately 74,500 cubic yards under an Engineering Evaluation/Cost Analysis (EE/CA) and continued development of the draft Feasibility Study/Proposed Plan for final cleanup of the area comprising the St. Louis Airport and Vicinity Properties and Latty Avenue sites (North County Sites).

FY 2003 funds are being used to perform design work and remove approximately 75,000 cubic yards under the Engineering Evaluation/Cost Analysis, complete the Feasibility Study/Proposed Plan, and begin work on the Record of Decision for the North County Sites. FY 2004 funds will be used to complete the Record of Decision, perform design work, and remediate approximately 75,000 cubic yards.

The schedule for completion of site remediation is to be determined.**

*** The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

NEW JERSEY

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
DuPont Chambers Works Deepwater, NJ Philadelphia District	22,210,000 – 29,630,000*	7,075,000	1,400,000	2,000,000	11,730,000 – 19,150,000

The DuPont Chambers Works site is a 700-acre active chemical plant located in Pennsville and Carneys Point Townships on the southeastern shore of the Delaware River, north of the I-295 Delaware Memorial Bridge, and adjacent to the residential community of Deepwater, N.J. The plant is owned and operated by E.I. Dupont de Nemours & Company. Operations involving uranium at the Chambers Works site began in 1942. As part of its work on the Manhattan Engineer District (MED) Program, DuPont worked on developing a process for converting uranium oxide to produce uranium tetraflouride and small quantities of uranium metal. The major contaminant is U-238 found in both soil and water samples. Through FY 2002, the Corps continued site characterization and Remedial Investigation / Feasibility Study (RI/FS) activities for soil contamination and investigation of possible ground-water contamination, conducted Technical Project Planning sessions with stakeholders including the New Jersey Department of Environmental Protection, held restoration advisory board meetings, conducted extensive coordination with the landowner, and completed workplans for on-site investigations and completed soil sampling and analysis for operable unit I .

Fiscal Year 2003 funds are being used for continuation of RI/FS activities for soil contamination, and for continuation of investigations of possible ground-water contamination. Requested funds for Fiscal Year 2004 will be used to complete the Rl/FS study and initiate the Record of Decision (ROD) for soil contamination, and continue investigations of possible ground-water contamination .

The schedule for completion of site remediation is to be determined.**

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. Current project completion schedules and cost estimates do not include any remedial design or remediation action for potential ground-water contamination.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 North Atlantic Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
Maywood, N.J. New York District	327,670,000 – 436,890,000*	194,165,000	28,000,000	26,820,000	78,690,000 – 187,900,000

The Maywood site is included on the Environmental Protection Agency Superfund National Priorities List. Site consists of 140 acres of residential, commercial and industrial property totaling 88 commercial and residential properties, located 20 miles north of Newark adjacent to Interstate 80 and State Route 17. There are approximately 259,000 cubic yards of subsurface contaminated material containing thorium-232, radium-226, and uranium-238. The United States owns 11.7 acres of the site, which is being used as a staging area during cleanup operations. The Stepan Company occupies part of the site and operates a chemical factory processing a patented product. Sears operates a large central distribution warehouse (leased) on the site. In the mid-1980's, 25 residential vicinity properties were remediated. In 1994 an Engineering Evaluation/Cost Analysis (EE/CA) by the Department of Energy approved a further interim removal action to remediate an additional 39 vicinity properties. As of the end of FY 00, all of the 39 vicinity properties included in the 1994 EE/CA have been remediated, including 23 completed by the Corps (15 in FY 98, 7 in FY99, and 1 in FY00). Additionally, the Corps has completed a Remedial Investigations/Feasibility Study/Proposed Plan (RI/FS/PP) for the remainder of the site, prepared an EE/CA for an interim removal action involving 10 commercial properties impacted by New Jersey Department of Transportation projects and initiated potentially responsible party (PRP) negotiations through the Department of Justice with the Stepan Company. The Corps has also initiated investigation of potential ground-water contamination.

FY 03 funds are being used to continue the interim removal action, to complete the Record of Decision (ROD), and to characterize the site further. FY 04 funds will be used to complete remedial design under the ROD and initiate remedial action for the remainder of the soils.

The schedule for completion of site remediation is to be determined.**

*** The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 North Atlantic Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
Middlesex, NJ New York District	84,660,000 – 112,890,000*	73,653,000	1,500,000	2,570,000	6,940,000 – 35,160,000

The Middlesex site is a Federal government-owned site located in Middlesex, NJ. There are also 36 Vicinity Properties (VPs). Primary contaminants are Uranium-232, Radium-226, and Thorium-232. The Manhattan Engineer District (MED) established the Middlesex Sampling Plant (MSP) in 1943 for use in sampling, storage, and shipment of uranium, thorium, and beryllium ores. MED operations ended in 1955, and the Atomic Energy Commission (AEC) later used the site for storage and performed limited sampling of thorium residues. In 1967, the AEC terminated activities at the MSP and decontaminated onsite structures to meet criteria then in effect. From 1969 to 1979, the site served as a US Marine Corps training center. In 1980, the MSP was returned to the Department of Energy (as AEC's successor), which designated it for clean up under FUSRAP. MSP was used for interim storage of two piles of radioactively contaminated soils removed from the vicinity properties (VPs) and from the Middlesex Municipal Landfill (MML). The Middlesex site was added to the Environmental Protection Agency Superfund National Priorities List (NPL) in FY 1999. Through the end of FY 2001, the Corps has removed and disposed of the MML pile and the VP pile. Coordination with Federal and state agencies, and local communities is continuing. Additionally, the Corps has initiated a Remedial Investigation/Feasibility Study (RI/FS) leading to a Record of Decision (ROD) for subsurface contamination, the remaining site buildings, and for ground-water contamination. FY 2002 funds were used to continue site characterization of the subsurface soils and ground water.

FY 2003 funds will be used to complete the Soils Remedial Investigation, issue a Ground-water Remedial Investigation Report, and prepare a Feasibility Study and Proposed Plan for Soils. FY2004 funds will be used to complete the ROD for soils.

The schedule for completion of site remediation is to be determined.**

*** The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 North Atlantic Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2004 $
Wayne, NJ New York District	123,190,000	121,139,000	200,000	200,000	1,650,000

The Wayne site is 6.5 acre Federal government owned site in Wayne Township, NJ. There are also 26 Vicinity Properties (VPs) covering 11 acres in the towns of Wayne and Pequannock. The radioactive contamination (Thorium-232) originated from commercial thorium processing operation conducted by Rare Earths Inc. and W.R. Grace and Company from 1948 to 1971. Contaminants migrated off-site, primarily via Sheffield Brook. The Wayne site was placed on the Environmental Protection Agency's National Priorities List (NPL) in 1984 and was added to the Formerly Utilized Sites Remedial Action Program (FUSRAP) the same year, after Congress directed the Department of Energy to undertake a cleanup of the site. Coordination with Federal and state agencies, and local communities is continuing. W.R. Grace is a potentially responsible party. Settlement negotiations with the company were completed in 1998 and subsequent to court review, a $32M settlement was reached in July 1999. Work accomplished to date includes the disposal of approximately 40,000 CY of soil from the VP pile, created by the remediation of the VPs; completion of an Engineering Evaluation/Cost Analysis (EE/CA); the removal and off-site disposal of 40,000 cubic yards of contaminated soil under the EE/CA; and the development and approval the Record of Decision (ROD). Additionally, the Corps has completed Remedial Design workplans, excavation of contaminated soils in accordance with the ROD, onsite treatment of contaminated water for off-site disposal and site restoration.

In FY 03, the Corps will continue short-term monitoring and site maintenance and to begin site closeout activities. FY04 funds will be used to continue short-term monitoring and site closeout activities.

The increase in total estimated cost is due to finding unexpected lead contamination, an increase in the volume of radiological contamination and an audit of contractor rates through FY01. A final contract audit will be required for close out of FY02 and FY03 contracts.

Transistion of the completed site to DOE will depend upon the time and effort required to close out previously remediated vicinity properties.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 Great Lakes and Ohio River Division

NEW YORK

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2004 $
Ashland 1, Tonawanda, NY Buffalo District	97,010,000	65,353,000	3,075,000	10,400,000	18,190,000

The Ashland 1 Site is a privately-owned 10.8-acre site in the Town of Tonawanda that is contaminated with radiological waste, including thorium, uranium and radium. The waste that was disposed of at the site originated at the Linde plant, where uranium ore was processed. The Record of Decision (ROD) for this site, which includes Ashland 2 and Area D of the Seaway site, was signed in April 1998 and calls for excavation and off-site disposal of radiologically-contaminated wastes. The volume estimate for Ashland 1 increased from 169,900 to 173,000 tons resulting in $5.0 million in increased cost. Through FY 2002 the Corps excavated, transported and disposed of 169,900 tons out of state. During FY 2002 additional contamination was found at Rattlesnake Creek (a small tributary about 1.4 miles in length which lies adjacent to Ashland 1and 2). The volume estimate for Rattlesnake Creek is 34,500 tons. This new volume of contamination has increased cost by $24.6 million. All planned activities continue to be coordinated with the New York State Department of Environmental Conservation.

FY 2003 funds are being used to complete excavation, initiate backfill and restoration of Ashland 1/Seaway D, and to initiate work plans for remediation of Rattlesnake Creek.

FY 2004 funds will be used to closeout the remedial action, including completion of backfill and restoration of the remediated areas for Ashland 1, and to complete work plans and initiate remedial action at Rattlesnake Creek.

The schedule for completion of site remediation is to be determined.** The extension of the schedule and the cost increase are due to the discovery of additional volume of contaminated soil at the Rattlesnake Creek Vicinity Property.

****The completion schedule will depend on overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 North Atlantic Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Tentative Allocation FY 2004 $	Additional to Complete After FY 2003 $
Colonie, NY New York District	160,000,000 – 192,000,000*	135,482,000	10,000,000	9,610,000	4,910,000 – 36,910,000

The Colonie site consists of a total area of 11.2 acres plus 56 vicinity properties (VPs). The primary site was owned and operated by National Lead Industries (NL) from 1937-1984. The facility was used for electroplating and manufacturing various components from uranium and thorium. Radioactive materials released from the plant exhaust stacks spread to site buildings, portions of the grounds, and the 56 commercial and residential VPs. NL also dumped contaminated casting sand into the former Patroon Lake. By order of a New York State Court the NL plant shut down in 1984. Coordination is ongoing with the New York State Department of Environmental Conservation, and local leaders. The transfer of the property from NL to the Federal government in 1984 contained "hold harmless" language, which precludes holding NL as a PRP. At the time of transfer of FUSRAP execution to the Corps, the Department of Energy (DOE) had completed remediation of the vicinity properties; and in 1995 finalized an Engineering Evaluation/ Cost Analysis (EE/CA), authorizing a removal action to address soils contamination at the former NL property itself. Through FY 2002, the Corps disposed, off-site, stockpiled materials and excavated contaminated soils, in accordance with the DOE EE/CA; completed a reevaluation of the DOE EE/CA and issued an amended EE/CA and revised action memorandum; and continued the ground-water investigations. FY 2002 funds were used to continue the removal action under the revised Action Memorandum and complete a ground-water remedial investigation.

FY 2003 funds are being used to continue the removal action under the revised Action Memorandum, prepare a risk assessment and feasibility study/proposed plan for ground-water investigation. FY2004 funds will be used to complete the removal action and continue development of the ground-water Record of Decision .

The schedule for completion of site remediation is to be determined.**

*** The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2003 $
Linde Air Products Tonawanda, NY Buffalo District	137,000,000	86,898,000	22,470,000	17,000,000	10,630,000

The Linde site is located in the Town of Tonawanda, a suburb north of Buffalo, NY. The project consists of two distinct areas: The original Linde site that is occupied by Praxair, Inc.; and (2) The designated vicinity property, the Tonawanda Landfill and Mudflats area that is located about 1.5 miles north of Praxair. The original Linde site is now owned and occupied by Praxair Inc. This is a former industrial complex in an urban area that now serves as the worldwide research and development facility for Praxair. Currently, employment is approximately 1,400 people. A public elementary school and numerous residential properties adjoin the property. Radioactive contamination generated by former Manhattan Engineering District activities, in the soils, buildings, and ground water at the Linde site are being evaluated and remediated, as required under CERCLA. The principal radionuclides of concern are radium, thorium, uranium, and decay products. A designated vicinity property, the Tonawanda Landfill and Mudflats Area, is located about 1.5 miles north of the Linde site proper. It consists of two contiguous Town of Tonawanda municipal tracts: the Landfill being approximately 55 acres; and the Mudflats Area, approximately 115 acres. Radioactive contamination at this vicinity property is being evaluated to determine if remediation will be necessary, as required by CERCLA. There are no buildings on this Vicinity Property. FY 2002 funds were used to continue the Linde soils remedial action, complete the Building 14 operable unit Feasibility Study Addendum and draft Proposed Plan, complete a third round of ground-water sampling necessary to prepare a draft Ground-Water Feasibility Study Addendum and complete the remedial investigation sampling for the Vicinity Property.

FY 2003 funds are being used to continue the Linde soils remedial action, complete a Remedial Investigation/Feasibility Study and Proposed Plan for the Ground - Water operable unit, complete the Record of Decision for the Building 14 operable unit and complete the Remedial Investigation Report at the Vicinity Property.

The schedule for completion of site remediation is to be determined.**

**** The completion schedule will depend on overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 — Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost $	Allocation Prior To FY2003 $	Allocation FY2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2004 $
Niagara Falls Storage Site, NY Buffalo District	319,220,000 – 425,620,000*	30,523,000	6,300,000	6,000,000	276,400,000 – 382,800,000

The Niagara Falls Storage Site is a 191-acre Federally-owned site with: a below ground interim repository for radioactive residues and waste; several buildings, one of which contains isolated areas of fixed, low activity radioactive contamination; and several vicinity properties (VPs). It is located in Lewiston Township, 19 miles northwest of Buffalo, NY. Material stored in the repository includes 234,770 cy of low activity radioactive waste and 14,390 cy of high activity radioactive residues. The repository is covered with an interim cap designed to retard radon emissions and rainwater infiltration.

The site Remedial Investigation (RI) is 95% complete and the Feasibility Study (FS) is 30% complete. FY 2002 accomplishments include initiation of the main portion of the FS, continuation of the RI, completion of the ground-water model, assessment/removal/disposal of asbestos in building 401, and continuation of yearly site maintenance and surveillance activities.

FY 2003 funds are being used to perform background water sampling, finish the RI including the draft RI report, and continue the FS. Site maintenance and monitoring will continue.

FY 2004 funds will be used to issue the final RI report, complete the FS including any needed treatability studies, prepare the Proposed Plan, begin building 401 demolition, remove the last of palletized waste from outside building 401, and continue maintenance and monitoring.

The schedule for completion of site remediation is to be determined.**

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The current cost estimate assumes that some action will be taken to address the entire site. The Feasibility Study will also evaluate a number of options, including the feasibility of leaving the containment structure intact for transfer to DOE for Long-term Stewardship under the MOU between the Corps and DOE. Selection of this alternative would likely result in a lower overall cost for the FUSRAP completion.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 — Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2004 $
Seaway Industrial Park, Tonawanda, NY Buffalo District	22,830,000 – 30,450,000*	7,784,000	800,000	700,000	13,550,000 – 21,170,000

The Seaway Landfill, a closed sanitary landfill, is a privately owned 93-acre site in the Town of Tonawanda, 3 miles north of Buffalo, NY that is contaminated, principally on 16 acres, with radiological waste, including thorium, uranium and radium. The waste that was disposed of at the site originated at the Linde Air Products plant, where uranium ore was processed. There are four areas associated with the Seaway Site - Areas A, B, C and D. Clean up of Area D is included in the Record of Decision for the remediation of Ashland 1 and Ashland 2. The project is being coordinated with the New York Department of Environmental Conservation, the New York State Department of Health, and the U.S. Environmental Protection Agency. Through FY 2002, the Corps has initiated the Remedial Investigation/Feasibility Study, completed additional characterization of the Areas A, B and C as requested by stakeholders. Additional contamination along the south-side areas bordering Ashland 1/Seaway D requires further investigation.

FY 2003 funds are being to complete a Technical Memorandum on characterization of the Areas A, B and C, incorporate already available data regarding south-side areas that border the ongoing Ashland 1/Seaway D remediation and continue the Feasibility Study Addendum.

FY 2004 funds will be used to complete the Feasibility Study Addendum, and to prepare a Proposed Plan and respond to comments.

The schedule for completion of the site remediation is to be determined.**

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 — Great Lakes and Ohio River Division

OHIO

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2003 $
Former Harshaw Chemical Company, Cleveland, OH Buffalo District	38,970,000 – 51,950,000*	990,000	2,625,000	1,500,000	33,850,000 – 46,840,000

The former Harshaw Chemical Company is a privately owned, 40-acre site located approximately 5 miles southwest of downtown Cleveland, Ohio. The area is predominately an industrial setting bordering the Cuyahoga River. From 1944 through 1959, the Manhattan Engineering District (MED) and the Atomic Energy Commission (AEC) contracted Harshaw for the purpose of supporting the Nation's early atomic energy program. Various forms of uranium were produced for shipment to Oak Ridge, Tennessee, for isotopic separation and enrichment. In 1960, the site was released for unrestricted use by the AEC, following decontamination efforts by Harshaw, under the guidance of the AEC. The project is being coordinated with the Ohio Environmental Protection Agency and the Ohio Department of Health. FY2002 funds were used to continue the Remedial Investigation (RI).

FY 2003 funds will be used to continue the RI and initiate the Feasibility Study (FS), and initiate a potentially responsible parties (PRP) investigation.

FY 2004 funds will be used to continue the RI and the FS, and complete the PRP investigation.

The schedule for completion of the site remediation is to be determined.**

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints**.

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2004 $
Luckey, OH Buffalo District	136,110,000 181,490,000*	14,249,000	1,680,000	1,000,000	119,190,000 – 164,560,000

The Luckey Site is a privately owned 40-acre site located approximately 22 miles southeast of Toledo, Ohio. FUSRAP contamination on site consists of both radiological and chemical wastes. The primary radiological contaminants at the site include radium, uranium and thorium. The primary chemical contaminants at the site are beryllium and lead. In 1949, the Atomic Energy Commission constructed a beryllium production facility at the site. The waste solutions and sludge from the beryllium production operations were stored in lagoons on the plant property. Waste solutions were also discharged into Toussaint Creek. (In 1958, beryllium production operations ceased.) In 1951 and 1952, the site operator purchased 1,000 tons of radiologically contaminated scrap steel from the Lake Ontario Storage Area. The scrap steel is believed to be the source of radiological contamination. The Luckey project is being coordinated with the Ohio Environmental Protection Agency and Ohio Department of Health. Through FY 2002 the Corps has: completed the Remedial Investigation; completed a potentially responsible parties (PRP) investigation; completed an expanded site investigation of two residential properties, completed a Biological and Water Quality Study of Toussaint Creek; completed a ground-water model report; and drafted a Feasibility Study and Proposed Plan for soils and ground water.

FY 2003 funds are being used to complete the Feasibility Study addressing soils and ground water, complete public review of the Proposed Plan, initiate response to comments on the Proposed Plan.

FY2004 funds will be used to finalize response to comments on the Proposed Plan, and complete a Record of Decision.

The schedule for completion of the site remediation is to be determined.**

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

**** The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2004 $
Painesville, OH Buffalo District	19,000.000 – 22,800,000*	7,920,000	6,000,000	5,000,000	80,000 – 3,880,000

The Painesville Site is a privately owned 60-acre site located approximately 22 miles east of Cleveland, Ohio. In the early 1940's, the Defense Plant Corporation constructed a magnesium production facility on property owned by the Diamond Magnesium Company. The Diamond Magnesium Company received approximately 1,650 tons of FUSRAP-related radiologically contaminated scrap steel from the Lake Ontario Storage Area, which resulted in contamination of the site. The site is contaminated with radiological waste, including uranium, radium, thorium, and decay products. The site is currently owned by the Crompton Manufacturing Company, Inc., which closed this facility in July 1999. They have demolished the plant and are performing environmental remediation for chemical contamination. 1,330 cubic yards of contaminated soils were removed from the site in the fall of 1998 under an Engineering Evaluation/Cost Analysis (EE/CA). The Corps initiated a focused Remedial Investigation/Feasibility Study (RI/FS) to determine the extent of additional contamination and establish the final cleanup criteria. The project is being coordinated with the Ohio Environmental Protection Agency and Ohio Department of Health. FY 2002 funds were used to continue the RI/FS. The cost estimate has increased since the last budget testimony by $1,030,000 as the result of further refinement of the cost estimate during the preparation of the draft RI/FS.

FY 2003 funds are being used to complete the RI/FS, coordinate the final cleanup criteria, complete the Proposed Plan, and complete the Record of Decision (ROD).

FY 2004 funds will be used to develop the remedial design, and initiate and complete remedial action for the site.

The site remediation is scheduled for completion in FY 2004.

***The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004 Great Lakes and Ohio River Division

PENNSYLVANIA

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2004 $
Shallow Land Disposal Area (SLDA) Parks Township, PA Pittsburgh District	TBD*	780,000	2,050,000	2,700,000	TBD*

The Shallow Land Disposal Area (SLDA) site encompasses 44-acres of land located in Parks Township, Pennsylvania located about 23 miles northeast of Pittsburgh, Penn nuclear fuel production facility located in Apollo, Pennsylvania generated wastes that were emplaced into a series of 10 trenches at the Shallow Land Disposal Area (SLDA period 1960 to 1970. The contamination is believed to consist primarily of uranium and thorium associated with production of nuclear materials at the Apollo facility. The 1(occupy an area of about 1.2 acres of the 44-acre Shallow Land Disposal Area. The site is currently owned by BWX Technologies and operates under a Nuclear Regulatory Commission (NRC) license. Any future U. S. Army Corps of Engineers (USACE) activities at the site will be consistent with the Memorandum of Understanding (MOU) betv USACE and the NRC for coordination on cleanup and decommissioning of the FUSRAP sites with NRC-licensed facilities, dated July 5, 2001.

In FY 2002, the Remedial Investigation was initiated following the CERCLA process.

In FY 2003 funds will be used to continue the Remedial Investigation (RI). FY 2004 funds will be used to continue the Remedial Investigation and initiate the Feasibility Study (FS).

***To Be Determined (TBD). A preliminary cost estimate for site remediation will be determined at completion of the Remedial Investigation phase.**

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2004

NATIONAL

Site	Total Estimated Federal Cost $	Allocation Prior to FY 2003 $	Allocation FY 2003 $	Requested Allocation FY 2004 $	Balance to Complete After FY 2004 $
Potential Sites TBD*	TBD*	0	0	1,000,000	

The Department of Energy (DOE) considered several hundred sites in the public and private sectors for the potential for residual radioactive contamination as a consequence of work accomplished in support of nuclear energy technology development that began in the early 1940s by the Manhattan Engineer District (MED). Of these considered sites, a limited number initially were designated for remediation under FUSRAP and the others were eliminated from further consideration at that time. Thereafter, the DOE notifies the Corps of new information changing the status of eliminated sites to that of eligible according to FUSRAP criteria.

FY2004 funds will be used to perform preliminary assessments at a number of sites referred by DOE, and if necessary, site inspections or other activities to determine if there is a release or threat of a release of a hazardous substance into the environment that will present an imminent and substantial danger to public health or welfare, and whether the site should be added to FUSRAP for further study and remediation.

***To Be Determined (TBD). A preliminary cost estimate and completion schedule for site remediation will be determined at completion of the Remedial Investigation phase.**

Justification Of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2004
($000)

APPROPRIATION TITLE: General Expenses	Estimated **FY 2003 Allocation**	**FY 2004 Request***	Estimated **Change FY 2003-2004**	Estimated **Percent Change**
1. Executive Direction and Management				
a. Headquarters, U.S. Army Corps of Engineers				
Baselevel Operating Expenses	$ 50,897	$ 52,671	1,774	3.5%
Civil Works Program Accounts**	9,054	23,080	14,026	154.9%
Total	$ 59,951	$ 75,751	$ 15,800	26.4%
b. Major Subordinate Commands	$ 71,931	$ 73,065	$ 1,134	1.6%
2. Other Activities				
a. U.S. Army Engineer Research & Development Center (ERDC)	274	$ 274	$ 0	0%
b. Humphreys Engineer Center Support Activity	$ 17,175	$ 17,524	$ 349	2.0%
c. Institute for Water Resources***	$ 4,661	$ 3,378	$ -1,283	-27.5%
d. USACE Finance Center	$ 1,008	$ 1,008	$ 0	0%
TOTAL:	$ 155,000	$ 171,000	$ 16,000	10.3%

*The Federal Retiree proposal is not reflected here. It appears in another section of the budget appendix.

**Some of these are: P2/PMBP, Planning Capability Improvement Program, Workforce Planning, USACE University/Leadership Development, Civil Works Guidance Maintenance Program, Info Assurance Program, CFO Audit of Civil Works Financial Statements, and Competitive Sourcing.

***The FY 2003 Institute for Water Resources line reflects $1.3M to complete the NAS Studies directed by Section 216 of the Water Resource Development Act of 2000.

APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management	Esstimated FY 2003 Allocation	FY 2004 Request
a. Headquarters, U.S. Army Corps of Engineers		
(1) Baselevel Operating Expenses:	$50,897,000	$ 52,671,000
(2) Civil Works Program Accounts:	9,054,000	23,080,000
	$59,951,000	$ 75,751,000

The Headquarters, U.S. Army Corps of Engineers is responsible for providing policy, guidance, and oversight of a comprehensive Civil Works Program. This mission is decentralized across the Corps of Engineers in 37 districts, 8 major subordinate commands (MSCs), and several field operating activities. The Headquarters, U.S. Army Corps of Engineers assists field commands by providing policy formulation and oversight, national programs management, preparation of the annual budget and legislative submission, national and international interface, management of high interest or controversial projects or issues, resource analysis and distribution, oversight of execution, and performance measurement. In addition to the traditional Civil Works mission, beginning in FY 98, the Chief of Engineers was given responsibility for the Formerly Used Sites Remedial Action Program (FUSRAP) previously managed by the Department of Energy.

The amount requested for the Headquarters, U.S. Army Corps of Engineers for FY 04 consists of two components: the baselevel operating expenses of $52,671,000; and the Civil Works Program Accounts amounting to $23,080,000. The Program Accounts were established in FY 95 as an outgrowth of disestablishing the Centralized Accounts, which were centrally managed at headquarters and billed back across the Corps. For expediency purposes, those activities essential to supporting the Civil Works mission were deemed appropriate for direct-funding from the General Expenses account and were presented in detail in the FY 96 budget justification data. Activities funded in the Program Accounts for FY 04 consist of Project/Program Management Business Process (P2/PMBP) training, automation and other related costs, $3,672K; Planners Capability Improvement Program, $1,970K; Workforce Planning, $830K; Implementation of Competitive Sourcing, $2,000K; USACE University, $1,404K; Civil Works Guidance Maintenance Program /Planning and Policy Guidance, $2,000K; Civil Works-funded employees training, $1,270K; Leadership Development/LDP Sustaining Base, $426K; E-Government Initiative – Outgrant/Leasing Requests, $167K; the CWD IM Support/Information Assurance Program, $1,278K; CFO Audit of Civil Works Financial Statements, $7,000K; and E-Government IT/IT Infrastructure, $1,063K. These activities undergo close scrutiny by the USACE leadership to ensure they meet the criteria for Program Account funding and are minimally funded to meet essential Civil Works Program mission needs.

The Corps is continuing its efforts to streamline the executive direction and management (ED&M) functions at all levels. The Headquarters projected staffing level for FY 04 is 420 FTE. This is a 14% reduction from the FY 97 level of 487. These reductions have been accomplished through focusing on appropriate roles and missions and eliminating duplication of effort, reducing the number of division offices from 11 to 8, and continual process reviews to achieve additional savings through efficiencies.

The breakout of cost differences for the Headquarters by category of expenses is shown below.

	Change		
$	1,560,000	Personnel Compensation and Benefits	
	1,494,000	Travel and Transportation	
	12,865,000	Training, ADP and Other Contractual Services	Within the $15,800,000, the amount of $9,000,000 is for two new requirements: implementation of Competitive Sourcing ($2,000,000); and CFO Audit of Civil Works Financial Statements ($7,000,000).
	- 119,000	Printing, Supplies and Equipment	
$	15,800,000		

APPROPRIATION TITLE: General Expenses

1. **Executive Direction and Management** (Continued)

a. Headquarters, U.S. Army Corps of Engineers (Continued)

Cost differences: The FY 04 budget reflects a flat staffing level in the headquarters of 420 FTE, which started in FY 02. The $75,751,000 requested for expenses of the Headquarters, U.S. Army Corps of Engineers, includes $48,901,000 for personnel compensation and benefits for civilian personnel and military officers, and $26,850,000 for other costs. The other costs include:

$ 3,995,000	Travel and transportation
2,000	Rent/Communications/Utilities
22,400,000	ADP, Training, and Other Contractual Services
453,000	Printing, Supplies and Equipment
$ 26,850,000	

b. Major Subordinate Commands

Estimated FY 2003 Allocation	FY 2004 Request
$71,931,000	$73,065,000

Major subordinate commands (MSC) provide the managerial and technical direction required for supervision of subordinate district offices and coordination of regional activities necessary to execute the Civil Works Program. The Executive Direction and Management activities are currently decentralized to 8 MSC throughout the United States.

In accordance with the Energy and Water Development Appropriations Act for 1996 (Public Law 104-46), the Secretary of the Army approved a plan to reduce the number of division offices from eleven to eight, with each division supervising at least four districts, and without changing the functions of the districts. This division restructuring plan was implemented beginning in FY 97 with full implementation to be phased over the next five years. With full implementation of the 8 division office structure, the divisions were to reduce to 546 FTE, (a decrease of 15 FTE or 2.7% from the 2001 level of 561). However, 7 Provost Marshall positions (occupied by “civil-funded” uniformed officers) have been civilianized effective in FY03, by direction of HQDA. No funding adjustment was involved, but for this reason, the MSC staffing level increased to 553. This staffing level will support an average civil staffing per division of 76 FTE, with the exception of the Pacific Ocean Division, which has a primarily military mission.

The breakout of cost differences for the Division Offices by category of expenses is shown below.

Change	
$ 1,119,000	Personnel compensation and benefits
-163,000	Rent, utilities, and communications
- 88,000	Printing and reproduction, supplies and equipment
-321,000	Travel and transportation
587,000	ADP, training, and other contractual services
$ 1,134,000	

1. Executive Direction and Management (Continued)

b. Major Subordinate Commands (Continued)

Cost Differences: The $73,065,000 requested includes $58,299,000 for personnel compensation and benefits for civilian and military personnel, and $14,766,000 for other costs. Labor costs reflect increases for higher than budgeted pay raises and potential increased costs due to offering relocation services under the Defense National Relocation Program. Other costs include:

$ 3,205,000	Rent, communications, and utilities
3,092,000	Travel and transportation
649,000	Printing and reproduction, supplies and equipment
7,820,000	ADP, training, and other contractual services
$ 14,766,000	

2. Other Activities

Estimated FY 2003 Allocation	FY 2004 Request
$23,118,000	$22,184,000

Other activities include: the Humphreys Engineer Center Support Activity (HECSA) which provides administrative support to Corps tenants of the Humphreys Engineer Center and to Corps headquarters; the Institute for Water Resources (IWR) which provides a variety of water management functions such as conducting and managing national studies, special studies in support of the Civil Works mission, data collection and distribution, and technical support to other Corps offices in matters dealing with water resource management; the Engineer Research and Development Center (ERDC) which provides support to the Coastal Engineering Research Board (CERB); and the US Army Corps of Engineers Finance Center (UFC) which was established in 1996 in Memphis, TN, to centralize the finance and accounting activities Corps-wide. The intent of Defense Management Resource Decision (DMRD) 910 has been completely satisfied by virtue of the consolidation and functional alignment of the UFC. Therefore, the Defense Finance and Accounting Service (DFAS) and the Corps have agreed that the UFC will not be capitalized as previously intended. Consequently, the 10 GE funded FTE's for the UFC remain in the required staffing targets. The General Expenses account provides funds only for those FTE supporting headquarters missions. These activities have reduced their staffing from 131 FTE in FY 00 to a flat 122 FTE starting in 2002.

The amount requested for these activities for FY 04 is $22,184,000, which is a net decrease of $-934,000 from the FY 03 allocation of $23,118,000.

APPROPRIATION TITLE: General Expenses

2. Other Activities (Continued)

Changes	
$ 578,000	Personnel compensation and benefits.
-139,000	Rent, utilities, and communications.
-1,282,000	ADP, Training and other contractual services
-78,000	Printing, Supplies and Equipment
-13,000	Travel and Transportation
$ - 934,000	

Cost Differences: Breakdown of the total $22,184,000 request for these support activities includes $11,038,000 for personnel compensation and benefits for civilian and military personnel and $11,146,000 for other costs. The other costs include:

$ 3,641,000	Rent, communications, and utilities (also includes HQ payments, since HECSA is HQ Spt Cmd)
116,000	Travel and transportation of goods
637,000	Printing and reproduction, supplies and equipment
6,752,000	ADP, training, other contractual services (includes PRIP payback)
$11,146,000	

APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)

1. Explanation of Revolving Fund. The Revolving Fund, which was established by Congress in 1953 (P.L. 83-153, 67 Stat. 199), replaced the Plant Allotment Account authorized by the Secretary of War, on 13 December 1934, which had in turn replaced the Plant Program - Appropriation Basis, which was in use prior to 1934. The two systems, prior to the establishment of the Revolving Fund, did not prove to be successful, because the accounting procedures necessitated by the systems were cumbersome and resulted in a distorted picture of costs when plant was transferred from one appropriation to another.

a. Essentially, P.L. 83-153 provided that the Revolving Fund assume the total capital value of $127.9 million in 1953, consisting of the unexpended cash balance ($25.3 million) and the net value ($102.6 million) of the assets and liabilities of the plant accounts; and to perform all future services, as a separate entity, within its own resources. The Plant Replacement and Improvement Program of the Revolving Fund, or PRIP, has proven to be an effective means of providing equipment and materials needed on more than one project. Some advantages of the system are: (1) Simplifies funding and accounting procedures; (2) Provides a means for plant rental which considers plant replacement costs; (3) Eliminates distorted project costs when plant is not used entirely on a single project throughout its economic life; and (4) Permits plant to be available on a timely basis to meet changing workload requirements.

b. The concept of the Revolving Fund is for it to operate within its own resources, rather than from annual appropriations. The Fund owns all the land, structures, dredges, other floating plant, aircraft, fixed and mobile land plant, tools, office, furniture, special equipment, computers and automated systems, that serve two or more Civil Works projects or appropriations. In order for the Revolving Fund to acquire and replace the above items, it is necessary that the user project or appropriation be charged a fee for the actual time the equipment or service is used. This fee consists of operating and fixed costs. The operating costs are reimbursed to the Revolving Fund without any surcharge. The fixed or capitalized costs include depreciation, based on the straight-line method and a plant replacement increment factor to provide for future increased costs of replacement items due to inflation. When planned expenditures exceed the income producing capability of the Fund, additional direct appropriations are requested.

c. When the Revolving Fund was established, Congress authorized a capital limitation or ceiling (Corpus) of $140.0 million for the Fund. The capital value or corpus is the total assets, less liabilities and reserves. The $140.0 million ceiling was adequate until 1965, when increased workload and inflation required that the Corps of Engineers request annual increase in the corpus ceiling. These requests were generally granted. The limitations on the corpus ceiling value limited the income that could be generated from plant rentals, which, in turn, adversely affected the overall management of the Fund. Therefore, the Corps recommended that an annual capital expenditure ceiling be substituted for the corpus ceiling. Congress granted the request in FY 1979. Starting with FY 1985, expenditure ceilings were replaced by estimates of expenditures. Starting in FY 1994, the Corps replaced the estimate of expenditures by an estimate of obligations. This was done in accordance with recommendations of the General Accounting Office that the Corps change to obligations accounting within the Revolving Fund.

2. The Revolving Fund is operated in the Divisions, Districts, and separate Field Offices, the Waterways Experiment Station, and the Cold Regions Research and Engineering Laboratory. The fund incurs the expenses of acquisition, rehabilitation, operations, and maintenance of multiple use structures, such as warehouses, shops, garages, and laboratories; the expenses of acquisition, rehabilitation, operations, and maintenance of general-purpose plant, such as dredges, tugs, launches, trucks, cranes, bulldozers, and other construction equipment; and the general expenses of District offices.

3. The Corps Revolving Fund, Plant Replacement and Improvement Program, includes thirteen New Major Items for FY 2004 and forty-two Continuing Major Items from FY 2002. Five of the Continuing Major Items have revised cost estimates in excess of ten percent. The charts below provide cost estimates for the New Major Items and the revised cost estimates in excess of ten percent for the Continuing Major Items.

APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)

New Major Items	Page	Total Estimated Cost ($000)
1. Six (6) Deck Barges (Omaha District)		2,650
2. ESSAYONS Bow Discharge System Replacement (Portland District)		795
3. Dredge YAQUINA Repower (Portland District)		8,957
4. Dredge ESSAYONS Repower (Portland District)		21,000
5. Dredge POTTER Floating Pipeline – Replacement (St. Louis District)		2,600
6. Dredge McFARLAND Asbestos/Lead Abatement (Philadelphia District)		3,500
7. KIMMSWICK – Replacement (St. Louis District)		1,780
8. Dragline D-61 – Replacement (Memphis District)		750
9. Dragline D-190 – Replacement (Memphis District)		750
10. Towboat PATOKA – Replacement (Mobile District)		5,890
11. Derrick Boat LD 638 and LD 646 – Replacement (Louisville District)		7,530
12. Towboat IROQUOIS – Replacement (Nashville District)		4,000
13. Zorinsky Building – GSA Leasehold Improvement (Omaha District)		7,111
		67,313

Continuing Major Items with Revised Cost Estimates in excess of 10%	Page	Previous Estimated Cost ($000)	Revised Estimated Cost ($000)	Total Cost Increase ($000)
1. Dredge WM. A. THOMPSON Repowering (St. Paul District)		12,400	20,797	8,397
2. Dredge Ladder Extension for the HURLEY (Memphis District)		8,087	11,350	3,263
3. Towboat M/V LIPSCOMB Replacement (Vicksburg District)		5,939	8,558	2,619
4. Survey Boat GATLIN Replacement (Mobile District)		1,634	2,162	528
5. Survey Boat SENTRY (HATTON) Replacement, (New York District)		2,043	2,652	609
		30,103	45,514	15,416

PRIP Category	Page
Land and Structures	163
Dredges	163
Other Floating and Mobile Land Plant	167
Fixed Land Plant and Automated Systems	174
Tools, Office Furniture and Equipment	176

APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)

4. FY 2003 and FY 2004 (Items costing $700,000 or more)

a. Land and Structures:

(1) Caven Point West Bulkhead Rehabilitation – New York District (Continuing). The 27-year-old steel sheet-piling Caven Point bulkhead is badly deteriorated. The west bulkhead is used to berth floating plant belonging to the New York District and to maintain the property line with the Caven Point Marine Base. Severe corrosion of the bulkhead has caused numerous cave-ins, which undermine the macadam area adjacent to the bulkhead that is used as a walkway and vehicle roadway, creating hazardous conditions to the crews working in the area and people getting on/off vessels. The voids created by the cave-ins have been filled and steel patches welded onto the bulkhead to temporarily stabilize the problem. Even with the patches, the bulkhead will continue to deteriorate requiring additional patches and constituting a continuing danger to employees. Total estimated cost: $2,900,000. Through FY 2002: $300,000 to initiate design. FY 2003: $2,600,000 to initiate and complete construction.

(2) Environmental Laboratory, Buildings 3296 and 3284 – Waterways Experiment Station (Continuing). Additions and betterments are required to permit the consolidation of the Environmental Laboratory into Buildings 3296 and 3284. The Environmental Laboratory is currently located in several buildings at four different locations within the Waterways Experiment Station. Management and administration as well as daily coordination of research activities are complex and inefficient under the present arrangement. The additions and betterments to Buildings 3296 and 3284 will allow for the consolidation of the Environmental Laboratory staff in a central location for a maximum efficiency of operations. Total estimated cost: $9,105,133. FY 2003: $655,900 to initiate design. FY 2004: $3,379,679 to complete design and initiate construction. Future Years: $5,069,554 to complete construction.

(3) Coastal and Hydraulic Laboratory Headquarters Building – Waterways Experiment Station (Continuing). The U.S. Army Waterways Experiment Station Coastal Engineering Research Center and Hydraulics Laboratory were merged in 1996 to form the Coastal and Hydraulics Laboratory, the largest water resources research and development laboratory in the world. The principal objectives of the merger were to foster team approaches to addressing complex water resources issues; to streamline management and eliminate duplication in technical methods, support staff, support systems and infrastructure and create synergy. These objectives are essential in the support of the Corps civil works mission. Progress has been hampered significantly because the two former organizations remain physically located in their pre-merger buildings approximately .5 miles apart by road. While some goals of the merger have been achieved, management and administration of the new organization has become more complex and less efficient because of the physical separation. The additions and betterments to the present Coastal Hydraulics Laboratory complex of buildings will allow full and complete consolidation of all personnel and equipment under one roof for maximum efficiency. The economic analysis comparing the cost of the proposed additions and betterments to the status quo supports the former based on a savings to investment ratio of 2.23 and a discounted payback period of 10.4 years. The net present value of the additions and betterments is $15.3 million, which is $8 million less than net present value of the status quo. Total cost estimate is $8,385,000. Through FY 2002: $7,997,000 to complete design and initiate construction. FY 2003: $388,000 to complete construction.

b. Dredges

(1) ESSAYONS Bow Discharge System Replacement – Portland District (New). The replacement of the Bow Discharge System to the Dredge ESSAYONS will improve the mission capability and maximum efficiency and safety of operations. The original side mounted pump ashore connections on the Dredge ESSAYONS are no longer the industry standard for pump ashore projects. The existing side mounted pump ashore connection system is not suitable for safe operation in an area exposed to wave action, such as Benson Beach, at the mouth of the Columbia River or the beach replenishment projects of southern California. All modern hopper dredges equipped with pump ashore capability use the over the bow pump ashore connection system which is safer and more efficient for working in all conditions. There are currently pump ashore projects developing in the Portland District as well as in Seattle, San Francisco and Los

Angeles Districts, which will require the Dredge ESSAYONS to be equipped to respond to these new pump missions. Maintaining the status quo will not allow the Dredge ESSAYONS to be utilized to its fullest potential on the West Coast or the nation. Installation of a bow connection style discharge system will expand the usefulness, allow for safe operations, and efficiently support the full range of current and planned future dredging projects. Benefit/Cost ratio is 25.5 to 1. Total estimated cost: $795,000. FY2003: $30,000 to initiate design. FY2004: $70,000 to complete design. Future Years: $695,000 to initiate and complete construction.

(2) Dredge YAQUINA Repowering - Portland District (New). The Dredge YAQUINA is assigned to the Portland District and home-ported at the U.S. Government Moorings, Portland, Oregon. The Dredge YAQUINA was put in service in 1981 and its primary mission is dredging shallow draft harbors along the West Coast of the United States, Alaska and Hawaii. The YAQUAINA is a U.S. Coast Guard certified vessel capable of going anywhere in the world. During the dredging season, the vessel operates 24 hours per day, seven days per week. The original engines have been overhauled many times and are in need of replacement, due to engine blocks being at the end of their economic life. These engines are no longer manufactured and parts are becoming very difficult to obtain. In addition, the areas dredged along the California coast now have emission restrictions and permitting is required. The original engines are 1970's technology and are not designed with low emissions as a consideration. The repowering of the vessel with modern, low emission diesel engines will allow the Dredge YAQUINA to operate economically and in compliance with ever tightening emissions restrictions well into the future. Without the repowering, the engines will fail in 3-5 years and cause the dredge to be removed from service. It would take approximately three years to repower the vessel at a loss of revenue equal to $25.6 million compared to new engines at a total cost of $8.9 million. Benefit/Cost Ratio is 2.9 to 1. Total estimated cost: $8,957,000. FY2003: $390,000 to initate design. FY2004: $65,000 to complete design. Future Years: $8,502,000 to initiate and complete construction.

(3) Dredge ESSAYONS Repowering - Portland District (New). The Dredge ESSAYONS is assigned to the Portland District and home-ported at the U.S. Government Moorings, Portland, Oregon. The Dredge ESSAYONS primary mission is dredging of harbors and coastal regions along the West Coast of the United States, Alaska and Hawaii. The ESSAYONS is a U.S. Coast Guard certified vessel capable of going anywhere in the world. During the dredging season, the vessel operates 24 hours per day, seven days per week. The existing original engines in the Dredge ESSAYONS have been in service for 20 years, have been rebuilt numerous times, and are nearing the end of their economic lives. The engines do not lend themselves to effective exhaust conditioning for lowering emissions and soon will not be able to comply with ever tightening emission standards on the west coast. Installation of new, more efficient, low emission diesel engines could result in potential fuel savings; may reduce the number of crew necessary to operate the dredge; and will lower permitting cost with the various air resources board jurisdictions in which the Dredge ESSAYONS operates. Without the repowering, engines would fail, and the dredge would be removed from service. It would take approximately three years to repower the vessel at a loss of revenue equal to $46.9 million compared to repowering at a cost of $21 million. Benefit/Cost Ratio is 2.23 to 1. Total estimate cost: $21,000,000. FY2003: $70,000 to initiate design. FY2004: $400,000 to complete design. Future Years: $20,530,000 to initiate and complete construction.

(4) Dredge POTTER Floating Pipeline Replacement – St. Louis District (New). The Dredge POTTER Floating Pipeline consists of 19 pontoons each with a 54-foot length of 32-inch diameter dredge discharge pipe. The floating pipeline is used to transfer dredge materials for a distance of approximately 1,000 feet to a location outside the navigation channel. The pontoons primary mission is to carry the discharge pipe of the Dredge POTTER and support the pipe during both operations and transport along the Mississippi River within the St. Louis District. The Dredge floating pipeline pontoons are 50 years old and are in poor condition requiring annual dry-docking to maintain river worthiness. The hull plating is thin due to wear and age. The pontoons have been replated at least once and the above water portions have deteriorated from age, which now require replacement. Repair costs are expected to continue to rise. An economic analysis was done comparing the options of replacement and maintaining status quo. The economic analysis showed that replacement of the pontoons was the least cost alternative with a NPV of $4.6 million compared with an NPV of $5.6 million for status quo. Total estimate cost: $2,600,000. Through FY2002: $35,600 to initiate design. FY2003: $10,000 to complete design. FY2004: $2,275,000 to initiate and substantially complete construction. Future Years: $279,600 to complete construction.

(5) Dredge McFARLAND Asbestos/Lead Abatement – Philadelphia District (New). The dredge McFarland was built in the 1960's when both asbestos and red lead were in wide use. Asbestos is throughout the McFarland in the fireproof crew space joinery (sheathing, ceiling and paneling); pipe insulation; and structural fire

protection (fireproof insulation on steel bulkheads to prevent melting in a fire). Red lead paint is also throughout the McFarland as the corrosion resistant base primer coat for all interior hull and house steel. The crew spaces on the McFarland are unchanged from the originally as-built condition. The general areas of the McFarland experiencing crew activity are the forward and aft crew quarters and spaces (pilothouse, galley etc.); the aft engine and machinery rooms; and the forward dredge pump rooms. The age of the vessel and age of the asbestos presents a high probability that fragments of the asbestos material have broken off over time and are lodged in the now inaccessible areas behind the joinery panels. Abatement of the asbestos and lead paint where crew activity occurs will ensure that current standards for crew safety are met. Total estimated cost: $3,500,000. FY 2003: $50,000 to initiate design. FY 2004: $3,000,000 to initiate construction. Future Years: $450,000 to complete construction.

(6) Dredge Tender WAILES Replacement – Vicksburg District (Continuing). The WAILES was built in 1935 and after 66 years of service is at the end of its economic life. The WAILES supports operations of the Dredge JADWIN by setting anchors, assisting the dredge in staying on-line while dredging, setting the landing barge and towing different types of barges including the fuel barge. Dredge Tender WAILES is critical to the execution of the JADWIN's mission of maintaining a nine-foot depth in the navigable channels of the Mississippi River. The Tender Wailes does not meet current industry standards; is underpowered; and is not equipped with flanking/backing rudders. This severely inhibits the steering efficiency of the vessel while in the astern or backing mode. In addition, electrical and mechanical systems are extremely old and unreliable and maintenance costs are continuing to rise. Total estimated cost: $2,225,000. Through FY 2002: $10,000 to initiate design. FY 2003: $1,945,000 to complete design and initiate construction. FY 2004: $140,000 to substantially complete construction. Future years: $130,000 to complete construction.

(7) Dredge ESSAYONS Control System Replacement MDC 2482 - Portland District (Continuing). The Dredge ESSAYONS has been in service since 1983. At delivery from the shipyard, automated systems were state of the art. However since 1983, automation associated with dredging systems have evolved significantly. Dredge ESSAYONS is still operating with much of its original automated dredge control and monitoring systems. Over time some of the systems have been either modified or upgraded or bypassed or abandoned. The major problem associated with the age of the systems is that replacements for some components necessary to run the systems are no longer commercially available. Replacement of the dredging system automation is required to allow continued operation of the dredging system. The economic analysis showed without the upgrade, the original dredging automation is estimated to fail in the next 3 to 5 years, and the vessel will be unsafe to operate with loss of revenue is estimated at $40.5 million a year. The original estimate of $3.9 million to replace the control system was based on market survey data obtained in FY 98. The estimate presumed the reuse of existing sensors and cabling components would reduce the cost of buying new components, as well as reduce the installation cost by the shipyard. However, during proposal negotiations it became clear that reusing the existing wiring and sensors, while fully functional, would not integrate properly with the new system and would be problematic. In addition, the decision was made to go to a best value style of procurement. This approach was selected to minimize the technical risk associated with this relatively complex job on a very valuable Corps asset. This procurement methodology along with the replacement of wiring and sensor components resulted in an estimated cost of $7.8 million, an increase of $3.9 million. Under this approach there is less technical risk of a project failure whereby either a system that didn't function properly or an installation that made the dredge unavailable for an extended period of time. Total estimated cost: $8,460,500. Through FY 2002: $8,280,500 for design and to substantially complete construction. FY 2003: $180,000 to complete construction.

(8) Dredge McFARLAND Longitudinal Seam Replacement – Philadelphia District (Continuing). The McFARLAND is one of four Corps of Engineers hopper dredges, and the only one operating on the East Coast. It requires the replacement of a longitudinal structural seam in order to maintain the ship's integrity and prevent the possibility of leaking contaminants into the ocean. The McFARLAND was originally constructed with a riveted lap seam strake running along the hull. Over the past thirty years this riveted strake has experienced wastage from moisture on the inside and wear on the outside, consequently is scrutinized by the U.S. Coast Guard during vessel dry-dock inspections. The wastage has created a leakage condition. These leaks were locally repaired during previous shipyard

periods, but are a problem that is becoming more prevalent. Although, in the past, the Corps of Engineer has been able to obtain a waiver, the Coast Guard has become increasing reluctant to pass the McFARLAND without major repairs being made to the strake. The only permanent way to correct the problem is to replace the riveted strake. Replacement of the strake will allow the McFARLAND to pass Coast Guard inspections; will increase the level of vessel safety and alleviate potential hazard to the environment. Only two alternatives were considered, the status quo, which involves continuing to maintain and repair existing riveted lap

seam strake, and replacement of the strake. The net present value of the replacement alternative, $172.4 million, is slightly less than the status quo, $173.9 million. More importantly it is a permanent repair, which eliminates the need for a waiver from Coast Guard requirements and effectively reduces the possibility of fuel oil leakages. Total estimated cost: $1,525,000. FY 2003: $1,525,000 for design and construction.

(9) Dredge WM. A. THOMPSON Replacement MDC 2457– St. Paul District (Continuing). The Dredge WM. A. THOMPSON was built in 1937 and repowered in 1966. The dredge is a 62-year-old self-propelled dredge and part of the Corps' Minimum Dredge Fleet. It has consistently proven itself to be the most cost-effective method of maintaining the 9-foot Mississippi River navigation channel in both the St. Paul and Rock Island Districts. In accordance with PL95-269, the THOMPSON was competitively bid against industry six times from 1979 to 2001. Continued use of the THOMPSON would save the Government $3 million annually. The existing power plant, after 33 years of use, must be replaced to reduce operating costs and downtime required to make repairs. Spare parts are becoming increasingly scarce and critical for major machinery components. Although repowering would extend the asset life another 30 years, it would not eliminate the eventual need for other MINS for updating structure and habitability items. In Dec 2001, an analysis of dredging requirements determined the THOMPSON be replaced with a component system consisting of dredge, towboat, quarters barge, and other attendant plant. This resulted in a revised cost estimate of $20,797,000 ($8,397,000 increase). Total estimated cost: $20,797,000. Through FY 2002: $632,000 to complete design.
FY 2003: $5,335,000 to initiate construction. FY 2004: $14,020,000 to substantially complete construction. Future years: $810,000 to complete construction.

(10) Repower Dredge POTTER, MDC 2375 - St. Louis District (Continuing). The obsolete, 1930's vintage steam power plant on the POTTER is under-powered, unreliable, expensive to operate and very difficult to maintain. This project will employ current technology to modernize the vessel's power plant, and increase the efficiency of both its propulsion and dredging systems. The dredge will be used indefinitely. The daily rate for the repowered dredge is projected at $33,200 per day, vice the current rate of $37,000 per day. The dredge uses an average of 6,200 gallons of fuel per day, which can be reduced to 2,400 gallons per day by repowering with a diesel electric configuration. The annual repair costs, presently in the $1 million to $1.5 million range, decrease to the annual estimated $500,000 repair cost of a repowered dredge. The total annually estimated savings in repairs, fuel, labor and plant increment is $1.5 million. Based upon a cost differential (savings) of $180 million over the life of the repowered dredge and a present value of savings of $31 million, it is recommended that the Dredge POTTER be repowered with a diesel electric configuration. Total estimated cost: $23,157,000. Through FY 2002: $23,137,000 for design and substantially complete construction. FY 2003: $20,000 to complete construction.

(11) Dredge Ladder Extension for the JADWIN, MDC 2276 - Vicksburg District (Continuing). The spare Hurley dredge ladder will be extended from 58' to 108' for the JADWIN to enable maintaining the recently deepened 45' navigation channel from Baton Rouge to New Orleans. Lengthening is required because dredging must be accomplished when river stages are still high in order to maintain the authorized depth at low stages. The present practice is to start dredging as soon as the dredge can reach the river bottom, but with the 58' ladder sometimes this is allows maintaining only a 250' wide channel, which presents problems to the shipping industry and increases the likelihood of collisions and groundings. Using the actual cost to convert the Dredge Potter as a model, and the change in scope from a newly constructed 75' ladder to lengthening of the spare Hurley ladder to108', the estimated cost during FY 2002 was revised from $1,090,000 to $8,292,200 ($7,202,200 increase). Current estimated cost is $8,520,000, an additional increase of $257,800 to accommodate cost of inflation. Modifications will be accomplished during the lay up period, which normally runs from December to June. Total estimated cost: $8,520,000. Through FY 2002: $36,000 to initiate design. FY 2003: $10,000 to continue design effort. FY 2004: $10,000 to continue design effort. Future years: $8,464,000 to initiate and complete construction.

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(12) Dredge Ladder Extension for the HURLEY, MDC 2450 - Memphis District (Continuing). All modifications necessary will be made to increase the dredge depth of the HURLEY from 40' to 75'. This involves lengthening the existing dredge ladder, extending the hull to accommodate the longer ladder, and modifying the ladder hoisting mechanism. As presently equipped the HURLEY can effectively be utilized only to dredge the shallow draft channel of the Mississippi River. The ladder extension will allow the HURLEY to be used to maintain the deep draft channel from Baton Rouge to New Orleans, extending its useful dredge season to about 250 days per year. E&D identified additional ladder hoisting and forward hull propulsion and maneuverability requirements associated with the longer hull form. This resulted in a revised cost estimate of $11,350,300 ($3,263,000 increase). Modifications will be accomplished during the lay up period, which normally

runs from December to June. Total estimated cost: $11,350,300. Through FY 2002: $2,200,300 for design. FY 2003: $4,200,000 to complete design and initiate construction. FY 2004: $4,800,000 to substantially complete construction. Future years: $150,000 to complete construction.

c. Other Floating and Mobile Land Plant:

(1) Dragline D-61 Replacement – Memphis District (New**)**. The Dragline D-61 is used by the Memphis District in support of its Revetment Section Clearing and Snagging Unit mission. The Dragline D-61 was purchased in November 1971 with an economic life of 20 years. The dragline (crane) is used by the Loading Unit. The D-61 lifts concrete mattress (matt) off the casting field onto trucks. The trucks move the matt riverside where another crane lifts them off the trucks to barges. The matt is then transported by barge to the job site. This mission is expected to last for the next 20 years. This piece of equipment has been used approximately 12 years past its economic and useful life. Increment cost and maintenance cost are excessive. Rental is not economically feasible. Total estimated cost: $750,000. FY 2004: $750,000 to initiate and complete construction.

(2) Dragline D-190 Replacement – Memphis District (New). The Dragline D-190 is used by the Memphis District in support of its Revetment Section Clearing and Snagging Unit mission. The Dragline D-190 was purchased in October 1977 with an economic life of 20 years. The dragline is used by the Clearing and Snagging Unit, which is the first unit to a revetment site on the Mississippi river. The unit clears the site of trees and vegetation by using bulldozers and snagging the trees with D-190. This unit is followed by the Grading and/or Sinking Unit. This mission is expected to last for the next 20 years. This piece of equipment has been used approximately 5 years past its economic and useful life. Increment cost and maintenance cost are excessive. Rental is not economically feasible. Total estimated cost: $750,000. FY 2004: $750,000 to initiate and complete construction.

(3) Deck Barges Replacement MDC 2588– Omaha District (New). The existing 58-year old deck barges (six) built in 1946 are in very poor condition with marginal watertight integrity and are beyond economical repair. Their primary purpose is to support the Missouri River Bank Stabilization and Restoration Project, the Kenslers Bend Bank Stabilization projects and the Missouri River Fish and Wildlife Mitigation Project. In addition, the deck barges are used to transport silt and sand dredge material on the Missouri River. The barge's interior structure is rusted and has been leaking for the past 15 years. They have had their bottoms, tops and most of the sides removed and replaced several times; but due to the extreme rusting of the interior structure, this is no longer feasible. The continued deterioration of this equipment will increase the risk of sinking, which places the towboat and its crew in an unsafe environment. An economic analysis was done to compare the option of replacement with status quo. The net present value of replacing existing deck barges is $3.1 million while the NPV of status quo is $2.5 million. Total estimated cost: $2,650,000. FY 2003: $40,000 to initiate design. FY 2004: $2,480,000 to complete design and initiate construction. Future Years: $130,000 to complete construction.

(4) KIMMSWICK Replacement MDC 2551 – St. Louis District (New). The Tender KIMMSWICK is a 34-year-old towboat constructed in 1968. The Tender KIMMSWICK serves as attendant plant to and assists the Dredge POTTER in its mission along the Mississippi, Illinois and Kaskaskia Rivers. The KIMMSWICK is used for positioning the pipeline, placing anchors, towing the dredge between dredging locations and transporting personnel. The hull plating is thin due to wear and age. The diesel engines are 15 years old and in need of overhaul or replacement. The electrical and mechanical systems on the KIMMSWICK are original parts and are now unreliable due to age. An economic analysis was done comparing the options of replacement and maintaining status quo. The economic analysis showed that replacement acquisition was the least cost alternative with a NPV of $6.5 million compared with an NPV of $7.7 million for status quo. Total estimated cost: $1,780,000. Through FY 2002: $10,000 to initiate design. FY 2003: $10,000 to continue design effort. FY 2004: $1,580,000 to initiate construction. Future Years: $180,000 to complete construction.

(5) Towboat PATOKA Replacement MDC 2573 – Mobile District (New). The PATOKA towboat is 46 years old. The PATOKA is used to provide crew quarters and mobility support for a crane barge and attendant plant for navigation channel maintenance on the Gulf Intracoastal Waterway from Pensacola, Florida, east to Apalachicola Bay at the East Pass (Destin), Escambia River, Bayou Chico and Scipio Creek projects in Florida and on the Apalachicola-Chattahoochee-Flint River system. Repairs have kept the towboat operating but have not addressed the age of the hull, piping systems and electrical distribution

system. The mission for the towboat has changed. This is due to the scheduled replacement of the crane barge in 2003 with a new crane barge with a 35-ton capacity at a 50-foot

radius. Repowering the PATOKA to support the new crane barge was considered but proved not to be a viable option, due to the design of the towboat. The maximum power increase, from the present 680 horsepower to 900 horsepower would only provide half the horsepower needed to safely and efficiently handle and tow the new crane barge and attendant plant. The new mission of the towboat includes maintaining the nine locks and spillways on the Black Warrior and Tombigbee and Alabama River systems. An economic analysis was done comparing replacement and lease option. Replacement acquisition with an NPV of $5.2 million versus $11.1 NPV for lease was the least costly alternative. Total estimated cost: $5,890,000. FY 2003: $55,000 to initiate design. FY2004: $5,305,000 to complete design and initiate construction. Future Years: $530,000 to complete construction.

(6) Derrick Boat LD 638 and LD 646 Replacement MDC 2554 – Louisville District (New). The New 50-ton Derrick Boat will replace two small Derrick Boats, the LD 638 a 51 year-old 15-ton crane and the LD 646 a 48 year-old 25-ton crane. The LD 638 is primarily used for hook and the LD 646 is used for snagging and dredging maintenance on the Ohio and Green Rivers. Both vessels have reached the end of their economic lives and due to the age and availability of spare parts, maintenance cost and breakdowns are increasing. Both cranes do not meet current safety standards, cannot handle personnel, and were designed and constructed prior to the building of the high lift locks and dams. An economic analysis was done comparing status quo, lease options, replacing two cranes in kind, acquiring a 50-ton crane and borrowing a 50-ton crane. Total estimated cost: $7,530,000. Through FY 2002: $13,800 to initiate design. FY2003: $50,000 to complete design. FY2004: $6,730,000 to initiate construction. Future Years: $736,200 to complete construction.

(7) Towboat IROQUOIS Replacement MDC 2297 – Nashville District (New). The IROQUOIS is a 46-year-old 750 horsepower towboat, constructed in 1955. The IROQUOIS is used to transport and position floating plant items such as derrick boats, deck barges and dump scows to maintain 1,170 miles of navigable channels and 19 navigation lock chambers along the Ohio River within the Nashville District. On several occasions, the IROQUOIS has responded to emergency dredging requests from the Louisville District to aid in keeping traffic moving on the Ohio River. The IROQUOIS was originally scheduled for replacement in 1995. The Nashville District has been able to maintain the vessel in seaworthy condition until recently when major hull components were discovered showing signs of metal fatigue and the effects of 46 years of service. The IROQUOIS has reached a point where major maintenance and repairs will not allow the vessel to continue servicing the district for more than a few years. Estimates received for the required repairs exceed the vessels current book value of zero. In addition, shipyards that inspected the IROQUOIS could not guarantee how long the major repairs would extend the vessel's life. The vessel is underpowered to push the modern floating plant equipment of the repair fleet in high flow conditions frequently experienced on the lower Ohio, Tennessee and Cumberland Rivers. This poses a severe safety problem to the vessel's crew, attending floating plant and repair fleet's mission when the vessel is needed the most. In addition, the IROQUOIS was designed and constructed before collision bulkheads and double plating for fuel tanks were required and thereby poses an environmental danger should the hull become compromised. Total estimated cost: $4,000,000. FY2003: $30,000 to initiate design. FY2004: $3,510,000 to complete design and initiate construction. Future Years: $460,000 to complete construction.

(8) Derrickboat No.10, Crane and Shop Barge Replacement MDC 2559 – Nashville District (Continuing). The existing barge, which supports construction and maintenance activities on the 1,170 miles of navigable channels and 14 navigable locks within the Nashville District, is approaching the end of its economic life. It is used to transport equipment and structures related to lock and dam maintenance activities such as mobile cranes, lock closure structures, mooring cell templates and lock dewatering pumps. In addition the existing barge is under-sized to handle the increasing complex maintenance activities at the districts aging lock structures, and will not have the capacity to maintain the new Kentucky Lock Addition when it is completed. The proposed replacement will be a deck barge with spuds, a small workshop and a reinforced deck, which will allow the addition, in the future, of a crawler crane with heavy lift capabilities. This acquisition is consistent with the district's Floating Plant Improvement Plan, which will replace a number of smaller barges with a smaller number of larger capacity barges. Total estimate cost: $7,540,000. Through FY 2002: $30,000 to initiate design. FY 2003: $6,880,000 to complete design and initiate construction. Future years: $310,000 to complete construction.

(9) Maintenance Gate Barge and Spare Gates MDC 2492 – Rock Island (Continuing). Existing gate barges, constructed in 1941 and 1970, each with a set of modular spare gates, that can be configured to fit locks on the Mississippi and Illinois Rivers, are located in the St Paul District, in St. Louis Districts, respectively.

The advanced age of the lock structures, over 60 years old, combined with the heavy usage, results in both sets of spares being in use most of the time. In this situation there are no spares available to return a lock to service in the event of the failure of an additional structure. Without additional spare gate replacement capability, commercial traffic on the Mississippi River will be significantly delayed, with a substantial negative economic impact. An analysis was done to determine the potential economic impact of a shut down in the absence of additional spare to permit the rapid replacement of damaged gates. It was estimated that the economic cost to the region would be approximately $10,000,000 over the next 40 years, the estimated life of the gate barge. Total estimated cost: $4,710,000. Through FY 2002: $250,000 for design. FY 2003: $4,255,000 to complete design and initiate construction. FY 2004: $140,000 to substantially complete construction. Future years: $65,000 to complete construction.

(10) Crane Barge MAZON Replacement MDC 2509 – Rock Island District (Continuing). The Crane Barge MAZON is used for strike removal and stone placement on the Illinois River, as well as for lock and dam work throughout the Illinois River basin from Chicago to Grafton and occasionally on other waterways such as the Ohio and Mississippi. The Crane Barge MAZON was built in 1974 and is at the end of its useful life. The crane, built in 1970, is continuously breaking down and the barge hull is worn thin and in need of repairs. In the last six years the barge has had an average of six weeks of down time per year due to repairs. The MAZON is required to be available 52 weeks of the year. The lack of a rapid response capability will delay navigation and cause economic harm to the Illinois Waterway. In addition, the MAZON has no restroom facilities, limited storage space and no travel capability for the crane. The estimated cost: $3,825,000. Through FY 2002: $25,100 to initiate design. FY 2003: $3,570,000 to complete design and initiate construction. FY 2004: $154,000 to substantially complete construction. Future years: $75,900 to complete construction.

(11) Crane Barge KEWAUNEE Replacement MDC 2481 – Rock Island (Continuing). The KEWAUNEE crane barge, which is 88 years old, is used to support the Quad Cities crane barge during gate changes and to provide daily support to structural maintenance gate repairs. The crane and barge are utilized daily during repairs to the miter gates and they are vital to the operation of the maintenance unit. The barge itself, constructed in 1913, was converted to a crane barge in 1981. Corrosion combined with normal wear and tear has deteriorated the existing barge to the point where repairs are no longer feasible and the crane is reaching the end of its life. The breakdown of the KEWAUNEE crane barge causes costly delays in the accomplishment of Districts' mission. Total estimated cost: $5,010,000. Through FY 2002: $27,100 to initiate design. FY 2003: $4,720,000 to complete design and initiate construction. FY 2004: $160,000 to substantially complete construction. Future years: $102,900 to complete construction.

(12) Towboat ROCK ISLAND Replacement MDC 2555 – Rock Island District (Continuing). The Towboat ROCK ISLAND is used to support the M/V Bettendorf to transport the structure maintenance fleet and tends the Derrick Boat KEWAUNEE during gate changes. This towboat is 31 years old and has developed extensive pitting on the hull exterior. This condition will require a costly hull replacement below the waterline. The internal black water holding tank, an integral part of the hull, has corroded through. The tank has been abandoned in place because of the high cost of replacement. Continued operation of the boat under current conditions will result in increased maintenance costs and reduced reliability. In addition, the ROCK ISLAND is underpowered and requires additional horsepower to safely move the fleet. Total estimated cost: $7,055,000. Through FY 2002: $10,000 to initiate design. FY 2003: $6,570,000 to complete design and initiate construction. FY 2004: $225,000 to substantially complete construction. Future years: $250,000 to complete construction.

(13) PEWARS Dock Crane Replacement – Pittsburgh District (Continuing). The PEWARS (Pittsburgh Engineer Warehouse and Repair Shops) is located on the Ohio River, Neville Island, PA. This facility supports the Pittsburgh District mission of maintaining 23 navigation facilities, 327 miles of navigable river and 15 flood control facilities. The dock crane is used daily to load and unload the government repair fleet between major maintenance jobs, to load and unload government materials, parts and supplies from contractor equipment servicing civil works projects, and to provide heavy lifting capacity at the dock front and the

general capability to move parts, supplies and material within the warehouse facility. Two (2) 30-ton capacity rail mounted portal cranes erected in 1946 originally serviced the dock front at PEWARS. One crane was decommissioned in 1993 due to poor structural condition and was subsequently cannibalized for parts to keep the other crane in service. The facility is currently serviced by the remaining crane and a 30-year-old crawler crane. The scope of work performed at districts' navigation facilities continues to increase as the facilities age. This increased scope over the past 35 years has outpaced the lifting capacity of existing equipment

and if not upgraded it will seriously impair the mission of the district. The economic analysis evaluated seven alternatives that ranged from status quo to privatization to acquisition through lease or procurement. The recommended alternative is replacement of remaining portal crane and crawler crane with a heavy lift stevedoring crane. This alternative was recommended over the slightly cheaper heavy lift stationary crane because its mobility will enable it to better meet the transfer needs at the Pittsburgh Engineer Warehouse and Repair Shops. Total estimated cost: $2,354,748. Through FY 2002: $2,344,748 for design and initiate construction. FY 2003: $10,000 to complete construction.

(14) Towboat M/V George W. Britton Replacement MDC 2350– Huntington District (Continuing). The M/V George W. Britton (Towboat 71) is used to transport the Huntington District's Repair Fleet Floating Plant to perform scheduled and emergency maintenance to 400 miles of navigable channels and navigation structures on the Ohio and Kanawha Rivers. Huntington District's Floating Plant has increased in physical size, capacity and tonnage in recent years to nearly double its original size. The current power system on the Towboat provides 1200 horse power rating. Operations presently require two trips to transport existing floating plant from one project to another during high water periods. During these high water periods the Britton's rate of travel is often slowed to less than one mile per hour pushing on one-half the Fleet. The under-powered condition of the Britton impairs the ability of the vessel master or pilot to move the fleet safely and efficiently. The economic analysis was done to compare the cost of keeping the existing towboat; re-powering; or the replacement thereof. The economic analysis showed that re-powering the Britton was slightly cheaper than the cost of acquiring a new towboat. However, re-powering would only extend the useful life of the Britton by ten years. By contrast a new towboat has a 40-year life. Total estimated cost: $6,210,400. Through FY 2002: $5,780,400 completes design and initiates construction. FY 2003: $270,000 for construction. FY 2004: $150,000 to substantially complete construction. Future Years: $10,000 to complete construction.

(15) Derrickboat No. 49 Replacement MDC 2313 - Huntington District (Continuing). The Derrickboat No. 49 is used to perform in house and major maintenance for nine (9) navigation structures on the Ohio and Kanawha Rivers and for timely response to breakdowns and emergency work required to keep 400 miles of navigable channels open to navigation. Derrickboat No. 49 was built in 1951 and at 49 years old is reaching the end of its economic life. Technology and government standards have changed significantly since No. 49 was constructed, which necessitates expensive modifications and retrofitting. In addition, many of its parts and operating systems are now obsolete and replacement parts are difficult to obtain. Also, the existing derrickboat does not have sufficient capacity to handle the more massive components such as culvert valves, maintenance bulkheads, and dam operating equipment. An economic analysis was done to compare the cost of acquiring a new derrickboat with the cost of a complete rehabilitation of the existing Derrickboat. This economic analysis showed that acquisition of a replacement derrickboat was more cost effective (NPV savings of $15.5 million) than rehabilitation of the existing boat. Total estimated cost: $2,665,100. Through FY 2002: $101,100 for design. FY 2003: $2,384,000 to complete design and initiate construction. FY 2004: $150,000 to substantially complete construction. Future Years: $30,000 to complete construction.

(16) Surveyboat ESSAYONS Replacement MDC 2529 – Philadelphia District (Continuing). The Surveyboat ESSAYONS is used to perform hydrographic surveys and extract bottom soil samples for maintaining the navigational waterways within the Philadelphia District. These waterways include the Delaware River and Bay, the Chesapeake and Delaware Canal and the upper Chesapeake Bay. The Surveyboat ESSAYONS was built in 1965 and is now 35 years old. Due to its advancing age the Surveyboat ESSAYONS requires frequent expensive maintenance and repair and parts are becoming difficult to acquire. The general condition of the Surveyboat will continue to deteriorate and will be subject to frequent and costly breakdowns, which will impact the efficient surveying and maintenance of the Philadelphia District's waterways. The economic analysis was done to compare the cost of keeping the existing vessel or the replacement

thereof. The economic analysis showed replacement of the Surveyboat ESSAYONS was more cost effective than maintenance of the status quo, with a NPV savings of approximately $650,000. Total estimated cost: $1,020,000. Future Years: $1,020,000 for design and construction.

(17) Towboat M/V LIPSCOMB Replacement MDC 2520 – Vicksburg District (Continuing). The M/V LIPSCOMB is used in support of revetment construction and maintenance along approximately 1,000 mile of navigable channels on the Mississippi, the Atchafalaya and Red Rivers and Channel Patrol on the Mississippi River. The M/V LIPSCOMB was built in 1958 and is now 42 years old and has outlived its normal economic life by 2-1/2 years. Furthermore the LIPSCOMB has

zero compartment floodability, which constitutes a major safety issue for crew and passengers. Current Corps standard is one-compartment damage stability for this type vessel. The proposed replacement would have increased horsepower and a modernized hull design for increased towing and operational efficiency. The new vessel would also permit a reduction in the crew size. The current estimate to replace the LIPSCOMB is $8.5M, an increase of $2.6M above the original estimate of $5.9M. The original government estimate included cost and pricing data from a series of smaller, less powerful vessels. The revised government estimate adjusts costs to reflect the differences in size and horsepower, and additional items to meet mission requirements. The updated economic analysis compares the cost of keeping the existing vessel with the cost of acquiring a replacement. It showed that replacement of the LIPSCOMB was more cost effective, with a NPV of $57.8 million, 17% less than the alternative of maintaining the status quo. Total estimated cost: $8,558,400. Through FY 2002: $176,700 to initiate design. FY 2008: $8,000,000 to complete design and initiate construction. FY 2004: $250,000 to substantially complete construction. Future Years: $131,700 to complete construction.

(18) Six (6) Deck Cargo Barges Replacement MDC 2543 – Rock Island District (Continuing). Deck Cargo Barges are used to transport riprap to repair and construct water control structures on the upper Mississippi and lower Illinois Rivers. This is necessary for the maintenance of the 9' channel required for navigational traffic. The six barges to be replaced (545, 549, 653, 900, 901 and 903) are no longer serviceable. They have developed structural problems with the deck plate and internal bulkheads due to years of rough usage being loaded with heavy rock, up to 400 lbs. The Fish and Wildlife Service has recommended the use of heavier rock (up to 700 lbs.) for repairs and bank protection. The extended use and increased poundage will cause additional wear and caving of the deck surfaces of the old barges, which may precipitate early retirement from service before a catastrophic failure occurs. The loss of the barges represents a loss of capability of 25%, with a loss of efficiency of 35% due to increase in time to transport material. The economic analysis was done to compare the cost of replacing the 6 barges with cost to remove the barges from service and contract out the mission essential work. The economic analysis showed replacement of the barges was the most cost effective (NPV savings of $1.6 million) of the alternatives. Total estimated cost: $2,807,300. Through FY 2002: $2,747,300 for design and to initiate construction. FY 2003: $50,000 to substantially complete construction. FY 2004: $10,000 to complete construction.

(19) Surveyboat M/V San Antonio Replacement – Galveston District (Continuing). The San Antonio is used for hydrographic surveying of the Galveston District's navigable waterways. Replacement is required because the existing vessel, built approximately 34 years ago, is aging and does not have the space or stability required and needed to utilize current hydrographic surveying equipment. The San Antonio is not able to execute fully the mission in inland waterway channels and offshore where sea conditions exceed 2 1/2 to 3 feet. The San Antonio replacement survey boat will serve as the primary platform for obtaining multi-beam surveys. Total estimated cost: $873,900. Through FY 2002: $855,900 for design and to substantially complete construction. FY 2003: $18,000 to complete construction.

(20) Surveyboat C. M. WOOD Replacement – Galveston District (Continuing). The C.M. WOOD is used for hydrographic surveying of the Galveston District's navigable waterways. Replacement is required because the existing vessel, built approximately 33 years ago, is aging and does not have the space or stability required and needed to utilize current hydrographic surveying equipment. The C.M. WOOD is not able to execute fully the mission in inland waterway channels and offshore where sea conditions exceed 2 1/2 to 3 feet which limits utilization of the C.M. Wood to less than 150 days a year. Especially important is a capability to respond in a timely fashion to perform final surveys when a contractor completes dredging. A timely response reduces potential for disputes or claims over final quantities. An economic analysis compared the cost of replacement with the costs of leasing a survey boat and the cost of modifying an existing boat to

meet current operational requirements. This net present value analysis showed that acquisition of a new survey boat ($2,096,300) was less costly than either leasing ($4,007,300) or modifying an existing boat ($2,801,400). Total estimated cost: $762,300. Through FY 2002: $687,300 for design and substantially complete construction. FY 2003: $75,000 to complete construction.

(21) 55 foot Surveyboat M/V ALEXANDER Replacement MDC 2459- New Orleans District (Continuing). The ALEXANDER is used for hydrographic surveying of the New Orleans's District's navigable waters. Replacement is required because maintenance costs are escalating due to the age of the vessel and the design of the ALEXANDER is not well suited to its present mission. The ALEXANDER is a larger vessel than is needed to run cross sections in the Mississippi River deep

draft crossings, its normal work site. Due to the implementation of global positioning systems on board the vessel, more cross sectional surveys are required. Therefore, a smaller vessel, designed for a crew of two, would be more functional. Replacement of the existing surveyboat with a lighter smaller vessel will allow surveys to be done quicker and with less fuel, saving time and money. The net present value analysis comparing the cost of a new vessel with cost of leasing a similar vessel ($4,328,600) and with continuing to operate and maintain the ALEXANDER ($3,923,000) showed that acquisition of a new survey boat ($3,800,400) was the most cost effective of the alternatives. Total estimated cost: $1,325,300. Through FY 2002: $1,315,800 for design and to initiate construction. FY 2003: $9,500 to complete construction.

(22) Replacement Towboat, M/V RAYMOND C. PECK (MDC 2389) - Pittsburgh District (Continuing). The M/V PECK is a 1200 HP diesel powered towboat used in mobilization of the district repair fleet for major maintenance of 23 navigation structures on the Ohio, Allegheny and Monongahela Rivers; channel maintenance of 327 miles of navigable river; and for response to navigation emergency situations. The existing vessel, which was constructed in 1983, is underpowered relative to current demands, which often results in double-tripping when tow size, river or weather conditions require. An economic analysis showed that it would be less than 2% cheaper to repower the PECK to 2400 HP than to replace it with a new vessel. However, while repowering is the cheaper of the alternatives, new construction was favored because of concerns regarding how well the repowered vessel would handle and because the repowered vessel would be likely to have significantly higher operations and maintenance costs to keep it operational for the assigned 40 year life. Total cost: $5,789,500. Through FY 2002: $5,529,500 for design and initiate construction. FY 2003: $150,000 for construction. FY 2004: $100,000 for construction. Future years: $10,000 to complete construction.

(23) Survey Boat GRANADA Replacement, MDC 2425 - New Orleans District (Continuing). The GRANADA is used for hydrographic surveying of the New Orleans District's navigable waterways. Replacement is required because the existing survey boat was constructed in 1971 and is approaching the end of its economic life. Maintenance costs are escalating due to the age of the vessel, and the steel hull has deteriorated over the years. In addition the weight of a steel hull significantly reduces speed and increases fuel consumption. An economic analysis comparing the alternatives of replacing the GRANADA with continuing to operate and maintain the existing plant favored the construction of a replacement. Total estimated cost: $1,381,600. Through FY 2002: $1,376,600 for design and to substantially complete construction. FY 2003: $5,000 to complete construction.

(24) Derrickboat No. 6 Replacement, MDC 2446 - St. Louis District (Continuing). The existing Derrickboat No. 6 is over 30 years old. It requires replacement because the hull plating has become thin due to wear and age. In addition its hydraulic crane, which is 13 years old, requires extensive repair due to heavy use. An economic analysis comparing the cost of a new derrick boat with the cost of repairing/rehabilitating the existing boat favored acquiring a new boat because it would save over $2.2 million over its useful life. The economic analysis also established a present value savings of over $800,000. The Derrickboat No 6 is attendant plant in support of the Dredge POTTER, which is used for placing/moving dredging anchors, transferring supplies and materials between the riverbank and the dredge. During the season when the dredge is laid up, the Derrickboat supports repairs to the dredge, pipeline and other plant. Total cost: $1,625,300. Through FY 2002: $1,570,300 for design and to substantially complete construction. FY 2003: $55,000 to complete construction.

APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)

(25) Panama City Crane Barge Replacement, MDC 2427 - Mobile District (Continuing**).** The Panama City Crane Barge performs snagging, riprap placement, minor clamshell and drag bucket dredging, pile driving, and other general navigation channel maintenance tasks on the Apalachicola-Chattahoochee-Flint River (ACF) system and the Gulf Intracoastal Waterway. The present crane barge was locally constructed in the 1960's making maximum use of components and materials obtained from surplus. It was constructed around a surplus deck barge built in 1940. With the present 40-ton crawler crane, the lifting capacity of the crane barge combination is grossly inadequate for the plant's mission. A larger crane cannot correct the problem because it would be severely limited by the barge's narrow 30' beam and 110' length. The replacement-floating crane will eliminate all the shortcomings of the existing plant. It will also be capable of supporting routine maintenance of locks and dams on the Black Warrior and Tombigee and Alabama Rivers, which now requires use of the larger capacity Debris Boat ROS, which is more costly to operate. Four alternatives were considered; construction of a new crane the least costly. The net present value of the PRIP

alternative is $2.5 million, compared to $8.7 million, $8.8 million, and $12.7 million respectively for the Status Quo, Rehabilitation and Lease alternatives. Total estimated cost: $6,909,700. Through FY 2002: $6,719,700 for design and initiate construction. FY 2003: $180,000 to substantially complete construction. FY 2004: $10,000 to complete construction.

(26) Survey Boat GATLIN Replacement, MDC 2428 - Mobile District (Continuing). The Survey Boat GATLIN conducts hydrographic surveys in support of dredging and other channel maintenance activities for Gulf Coast harbors and for the stretch of Gulf Intracoastal Waterway within the district's area of responsibility. The existing survey boat was constructed in 1973 and will require major rehabilitation if it is not replaced. The existing vessel also suffers from a design deficiency, which limits its capacity to carry out its mission in rough seas. The proposed replacement will reduce the percentage of days when surveys cannot be done from 40 to 15%; it will also increase productivity through an increase in speed from 16 to 40 knots which will reduce transit times to survey sites. The economic analysis comparing the costs of a new vessel with costs of leasing a similar vessel, rehabilitating the GATLIN and the status quo showed that acquisition of a new survey boat was the most cost effective of the alternatives. Estimated cost increase from $1,634,000 to $2,162,200 ($528,200). The increase is the result of a change in the hull form to meet stability requirements and costs of inflation. Total cost: $2,162,200. Through FY 2002: $2,102,200 for design and substantially complete construction. FY 2003: $60,000 to complete construction.

(27) Tender KIMMSWICK Replacement, MDC 2413 - St. Louis District (Continuing). The KIMMSWICK tends the Dredge POTTER. It is used for positioning the pipeline, placing anchors, towing the dredge between locations and transporting personnel. The KIMMSWICK is 29 years old. The hull plating is thin due to wear and age. The diesel engines are 10 years old and in need of overhaul. Electrical/mechanical systems are original and have become unreliable. Need for a dredge tender continues. The daily rate for a new vessel is estimated to be $1,800, and the present rate of the KIMMSWICK ($1,200) is expected to rise to $2,000 per day due to the need for major hull work and engine overhaul. Based on a savings of $1,137,197 over the life of a new vessel and a present value of savings of $290,645, it is recommended that the Tender KIMMSWICK be replaced. Total estimated cost: $2,306,000. Through FY 2002: $2,286,000 for design and to substantially complete construction. FY 2003: $20,000 to complete construction.

(28) Survey Boat SENTRY (HATTON) Replacement, MDC 2399 - New York District (Continuing). The survey boat SENTRY's replacement will be used to perform year-round hydrographic survey work in offshore or unprotected waters as well as protected waters in the New York Harbor area. If the SENTRY is not replaced, New York District's ability to fulfill its mission of maintaining the federal channels under authority of the River and Harbor Acts will be seriously degraded. An additional new requirement for the District is the Phase II deepening of Newark Bay, Kill Van Kull to Howland Hook, scheduled for construction from 1999 through 2008. The use of a new high technology survey vessel and equipment will be required. Secondary missions of the vessel will include side scan survey operations, water quality sampling, oceanographic survey station keeping, soil sampling, current meter placement, diver support, inspection tours, and emergency operations in New York Harbor. Economic analysis shows that new construction is about $40,506 less per year (present value terms) than the status quo. The analysis also shows savings to investment ratio (SIR) of 1.23, that is, for every dollar invested in new construction, $1.23 in savings will result. Based upon a cost differential (savings) of $8.3 million over the life of a new vessel and present value savings of $2.9 million, it is recommended that the SENTRY be replaced. The

original authorization in FY99 through FY02 equaled $2.6M. An administrative oversight in FY03 reduced the project to $2M. An increase of $609,700 is required to restore authorization to equal the current estimated cost of $2,652,400. Total estimated cost: $2,652,400. Through FY 2002: $2,342,400 for design and to initiate construction. FY 2003: $300,000 to substantially complete construction. FY 2004: $10,000 to complete construction.

(29) Crane Barge 7 Replacement, MDC 2360 - Rock Island District (Continuing). The existing crane barge consists of a crawler crane, mounted on a spud barge. The unit is used for structural repairs on the Illinois Waterway. The barge, constructed in 1959, was originally designed as a 34' x 104' x 8' deck cargo barge. This existing barge has reached the end of its useful life and is no longer economically reparable. The width of this spud barge makes it an unstable platform for a lift crane. Recent evaluations indicate the crane barge combination in its current configuration is operating at reduced safety and efficiency. The existing, fully operational 150-ton crane, purchased in 1988, will be mounted on the new spud barge. The replacement crane barge will be designed and

constructed utilizing an existing concept being developed by Marine Design Center. This unit, when constructed and delivered, will continue to be used in direct support of the Illinois Waterway project to perform structural repairs to locks and dams, strike removal, and maintenance of channel regulating structures. Total Estimated Cost: $3,466,100. Through FY 2002: $3,356,100 for design and to substantially complete construction. FY 2003: $110,000 to complete construction.

(30) Crane Barge 8 Replacement MDC 2361 - Rock Island District (Continuing). The existing crane barge consists of a crawler crane mounted on a spud barge. The unit is used for structural repairs on the Illinois Waterway. The barge, constructed in 1959, was originally designed as a 34' x 104' x 8' deck cargo barge, and is identical to Crane Barge 7. The barge has reached the end of its useful life and is no longer economically reparable. The width of the existing barge makes this an unstable platform for a lift crane. Evaluations indicate the crane barge combination is operating at reduced safety and efficiency. The existing, fully operational 150-ton crane, purchased in 1988, will be mounted on the new spud barge. The crane barge will use the standard design being developed by Marine Design Center. This unit will be used in direct support of the Illinois Waterway project for work similar to work being performed by Crane Barge 7 Replacement. Total Estimated Cost: $3,422,600. Through FY 2002: $3,312,600 for design and initiate construction. FY 2003: $110,000 to complete construction.

(31) Office Barge Replacement - Rock Island District, MDC 2320 (Continuing). The existing District Office Barge was fabricated in 1966 using a deck cargo barge built in the 1940s, pouring a lightweight concrete slab on the deck, and erecting a prefabricated metal pole building on the concrete slab. The existing office barge is in poor condition, with numerous hull leaks. The metal on the hull is suffering metal fatigue, and it has a short life expectancy. This office barge is used as a combination office/locker room/galley for the District Mississippi River structural repair crew. It is used year-round in all weather conditions. In addition, it is proposed to make the new office barge larger, which will result in the elimination of a second, smaller office barge. This will consolidate all personnel assigned to the section on one barge, reducing both the fleet size and winter heating requirements. The replacement barge design dimensions replicate existing barge dimensions so that the new office barge can be easily accommodated in tow with other barges. This replacement office barge will provide safe and efficient office space, locker room, and galley or break area for the thirty-person crew of the Mississippi River project. Total Estimated Cost: $2,907,800. Through FY 2002: $2,897,800 design and to substantially complete construction. FY 2003: $10,000 to complete construction.

(32) Replacement Derrickboat, MONALLO, MDC 2400 - Pittsburgh District (Continuing). The existing Pittsburgh District heavy-lift floating crane MONALLO II is a 145-ton marine revolver type crane. The vessel is used in support of major maintenance and repair activities for the twenty-three (23) navigation structures on the Ohio, Allegheny and Monongahela Rivers, channel maintenance of 327 miles of navigable rivers and emergency response situations. Since delivery of the existing Derrickboat in 1954, construction of new navigation projects in the Pittsburgh District with larger, heavier components has out-paced the capacity of this floating crane. The District currently and historically performs 4 to 5 lock chamber unwaterings per year. During these scheduled unwaterings, the miter gates are lifted, removed and repaired as necessary. In addition to utilizing the vessel for project maintenance, the District also maintains an emergency response capability to restore navigation in the event of natural disaster or man-made disasters such as barge breakaways and collisions. The Derrickboat MONALLO II is currently 42 years old and spare parts for the vessel and its machinery are increasingly difficult to locate and repairs increasingly more expensive. Acquisition of a replacement vessel with greater capacity will provide the capabilities required to safely and efficiently perform the operations and maintenance mission of the

District. Total Estimated Cost: $9,510,200. Through FY 2002: $9,390,600 for design and to substantially complete construction. FY 2003: $120,000 to complete construction.

e. Fixed Land Plant and Automated Systems

(1) Interactive Vessel Simulators Replacement – Waterways Experiment Station (Continuing). The existing vessel simulator was acquired in 1983 and last upgraded in 1994. Its primary purpose is to evaluate and optimize proposed changes in Federal navigation channels. With the capability to simulate either a ship or tow, it operates in real-time and is used by actual vessel pilots to help finalize channel designs. The need to maintain the capability to design and improve the nations' navigation system will remain high as the world's ocean-going fleet increases in size and as vessel throughput becomes a more critical economic factor. Application of a simulator will help reduce maintenance and construction costs and ensure that projects are optimized for navigation safety. Maintaining existing simulator is no longer cost effective. The equipment continues to deteriorate and replacement parts have become harder to obtain which results in downtime that has affected project time schedules. Total estimated cost: $980,000. FY 2003 requirement: $980,000 to initiate and complete construction.

(2) Facilities and Equipment Maintenance (FEM) System – Corps-wide (Continuing). Facilities and Equipment Maintenance (FEM) was developed by the Department of Defense (DOD) Joint Logistics Systems Center (JLSC) (now managed by the DOD Program Manager – Navy Systems Support Group) to meet the needs of DOD organizations with equipment and facilities maintenance responsibilities. Currently the components of the Air Force, the Navy, the Marines, and the Army are utilizing FEM to manage equipment and facility maintenance. FEM has two principal benefits for the Corps. First, it provides a standard system for managing maintenance requirements of Civil Works projects, facilities and equipment. In the absence of a standard system, field offices have either developed their own automated tools or have continued to manage with non-automated paper-based processes. Implementation of FEM will eliminate duplicative software development and maintenance efforts and extend the efficiencies of automated maintenance management to all Corps activities. Automation of maintenance management in general, and FEM in particular will extend equipment/plant service life, reduce maintenance labor costs, and reduce the replacement part inventory requirements. Second, FEM provides the Corps with a proven system based on a commercial off-the-shelf (COTS) application that interfaces with other Corps legacy systems such as the Corps of Engineers Financial Management System (CEFMS), Automated Personal Property Management System, Real Estate Management Information System, and will also replace the functionality currently provided by the Vehicle Information Management System. This system is also the information technology enabler for the operations and maintenance piece of the Corps Project Management Business Process. In addition, FEM will standardize the maintenance business process Corps-wide. The estimated capital cost for implementing FEM was identified as $4,562,000 initially, which was adjusted for an additional cost of $2,313,000 due to a change in pricing and settlement of a contract dispute. This baseline submission did not adequately address system interface costs, which was discovered during the development phase. This resulted in additional surveys of Corps activities to identify additional data and local legacy systems that would require contractor support in converting to the new system. This will result in an increase in requirements to support the change required to realize business values and efficiencies associated with the automated tool. A revised Benefit Cost Analysis (BCA) validated business value benefits with a Net Present Value of $3.578M with annual cost avoidance of $1.285M in FY 02, $2.812M in FY 03 and $4.149M. Total cost through FY 2002: $7,059,943 for development. FY 2003: $400,000. Additional requirements for FY2003 and FY2004 to complete and deploy FEM will be submitted in accordance with the language on page 42 of House Report 107-258.

(3) Water Control Data Systems (WCDS) Software Development - Corpswide (Continuing). This software modernization effort involves the development of a standardized suite of software which all Corp activities will use to monitor, manage and operate the Corps water control facilities nationwide. This modernized UNIX driven, workstation-based automated information system will utilize the Corps standard database management system, ORACLE, and the Corps of Engineers Enterprise Infrastructure Services (CEEIS) network for moving data and information within the Corps. This modernization will greatly improve the Corps ability to perform its basic water management mission including water control decision making by improving hydrologic forecasting and making water control data universally available to all Corps users and Corps customers. These improvements will increase all project benefits (flood control, water supply, navigation, irrigation, hydropower, water quality, and recreation). In addition, this effort will save local software development costs, running in the neighborhood of $1 million

annually. This effort is being managed in accordance with the requirements of the Army's Life Cycle Management of Information Systems (LCMIS) program. The projected Corps-wide benefit to cost ratio is well in excess of 1:1; a complete economic analysis will be included as part of LCMIS milestone I/II review and approval process. Total estimated software investment cost: $7,603,000. Through FY 2002: $7,424,000 for development and begin implementation. FY 2003: $178,000 to complete.

(4) Project Management Information System, P2 - Corpswide (Continuing). P2 is a commercial-off-the-shelf (COTS) configured application replacement for the Project Management Information System (PROMIS) as the next generation of program and project management software. Like PROMIS, P2 will serve as the primary tool for project and technical managers within the Corps to maintain program and project data. P2 will provide a single source of all project-related information for all programs and projects managed by field commands, and will interface with other modernized systems to assure single source data entry. P2 will enable streamlined project management and resources, and be a major improvement in the Corps project management planning capability. P2 integrates and

capitalizes on advances in commercial project management software, wider availability, Web interfaces, and lower costs, which will provide a more cost-effective alternative to PROMIS. This was substantiated by an independent cost/benefit analysis of the COTS alternative. The principal benefits are lower costs to maintain and upgrade COTS software in future years. Total development cost of PROMIS through FY 2000: $11,446,000 of which $6,338,000 funded by the revolving fund for development, deployment and for additions and betterments. The original cost estimated for P2 was $12,500,000, which was increased to $15,722,000; an increase of $3,222,000 due to increased cost and for the procurement of a corporate network analysis software, not previously identified. The current cost requirement for P2 is $23,745,000, an increase of $8,023,000 over the Congressionally approved Revolving Fund Plant Replacement and Improvement Program (PRIP) authority. This increase is due to a requirement to procure additional computer servers and related hardware; to develop legacy system interfaces necessary to meet the original scope presented in prior year PRIP justifications that were unforeseen, but necessary for P2 to meet the functional requirements; and to complete configuration, testing and deployment. Total estimated cost for P2: $23,745,000. Through FY 2002: $15,652,553 COTS purchase and application configuration. FY 2003, $7,200,000 to complete configuration and testing and to begin deployment. FY2004: $892,447 to complete deployment.

(5) Corps of Engineers Automation Plan (CEAP) (Continuing). The capital acquisition portion of CEAP, renamed Corps of Engineers Enterprise Infrastructure Services (CEEIS) was created to replace the Corps mainframe computing hardware consisting of leased Honeywells at the division level and Corps-owned Harris computers at the district level. The Corps awarded a contract to the Control Data Systems, Inc., in October 1989 for hardware/software acquisition and support services. The contract was structured for maximum flexibility, not committing the Corps beyond the first year but providing the Corps with 10 annual renewal options. The contract also provided for a pilot test at the Southwestern Division, the Waterways Experiment Station, and the former Headquarters' Engineer Automation Support Activity. Based on pilot and stress test results and a cost comparison of various deployment scenarios, the Corps redeployed pilot test equipment to two large regional processing sites, one in Portland, Oregon and the other in Vicksburg, Mississippi. To maintain a viable corporate-wide system at these two regional sites, the Corps has invested in additional mainframe processing capacity, operating software, additional storage capacity, communications devices, and associated processors to link all Corps sites to the two regional centers. FY 2002 and prior requirement: $81,410,200. FY 2003: $3,500,000.
FY 2004: $2,000,000.

(6) Recurring ADPE Requirements Corps-wide (Continuing). This grouped item includes general purpose microcomputers, graphics display terminals, interactive terminals, plotters, remote job entry devices, digital communications equipment supporting Corps ADPE. Also included are dedicated word processing centers, microcomputers used for such office functions as word processing, electronic mail, spread sheet applications, small data base applications, Headquarters Local Area Networks centralization, and communications with main frame computers for storage and retrieval of management information. Recurring ADPE is utilized to improve the interfaces between separate computer configurations, to improve the communications transmission capability, and to replace ADPE that has reached the end of its useful life. Microcomputers are justified on a cost benefit basis to support both management and business, and scientific applications.

APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)
The demand for quick access to accurate information at operational levels has generated requirements for ADPE in functional areas where it was previously absent or in functional areas where modern upgrade is required. All recurring ADPE requirements will be reviewed for consistency with the Corps of Engineers Information Systems Management Plan. FY 2002 and prior requirement: $6,407,200. FY 2003 requirement: $1,737,100. FY 2004 requirement: $2,255,500. Future requirement: $4,268,800.

f. Tools, Office Furniture and Equipment

(1) Zorinsky Building GSA Leasehold Improvement and Furniture – Omaha District (New). The Edward Zorinsky Federal Building, a GSA owned building is currently undergoing a complete building renovation. To accommodate the renovation, the Omaha District has temporarily moved its Headquarters to three temporary locations, returning to the Zorinsky Building in January 2004. During GSA's renovation of the building, the Omaha District is responsible for the build-out of a secure communications room to house a system to receive and distribute classified messages up to top-secret level; and communication wiring to provide drops at workstations to connect to the local area network (LAN). In addition, the District plans to purchase modular/systems furniture for its 830+ employees. The existing furniture used at the District's temporary locations, moved from the Zorinsky Building, ranges from 5 year-old systems furniture to 30 year stand alone

furniture with conditions ranging from good to unserviceable. This furniture requires an average of 190 square feet per person. The purchase of new system/modular furniture will reduce the average space utilization to 130 to 160 square feet per person, thus reducing the foot print by 30 - 60 sq feet per employee. Upon completion of the renovation of the Zorinsky Bldg, GSA anticipates the rent will be at least $20.00 per sq foot. Saving just 30 sq feet per person with 830 employees is a cost avoidance or savings of $458,000 per year in rent. Total estimated cost: $7,111,000. FY 2004: $7,111,000 for leasehold improvement and furniture purchase.

(2) Headquarters Relocation (Continuing). The Corps has completed its relocation of Headquarters activities from the Pulaski Building to the 3rd floor of the General Accounting Office (GAO) Headquarters building at 441 G St. NW. In addition, the Corps proposes to lease an additional 17,500 square feet on the 6th floor of the GAO building on approximately the same terms favorable to the Corps as in the 3rd floor lease. This additional space, which was not available when the Corps initially planned its move from the Pulaski Building, will permit the Corps to relocate approximately 70 Headquarters personnel who are currently located at the Humphrey's Engineer Center, near Ft. Belvoir, in Alexandria, Virginia, to the GAO Building. The additional cost of this relocation, including renovation of the space on the 6th floor, systems furniture, and phone and local area network wiring costs is $2,922,000. As previously, an equitable share of the renovation costs will be recovered via rent reductions over the life of the lease. Use of the Revolving Fund was authorized in Title I, Energy and Water Development Appropriations Act, 1999, P.L. 105-245. Total estimated cost: $32,840,132. Through FY 2002: $32,783,785 for design and substantially complete construction and relocation. FY 2003: $56,347 to complete the relocation.

APPROPRIATION TITLE: Support for Others, FY 2004

JUSTIFICATION:

Support for Others (SFO), the manpower for which is separately resourced by the Office of Management and Budget, is reimbursable work performed by the Army Corps of Engineers and funded by various Federal agencies, states, political subdivisions of states, and other entities, under applicable Federal law. The program fills a void for many agencies, which do not have adequate capability to execute the engineering related needs of their missions or manage the engineering or construction contracts with private firms. The reimbursable assistance the Army Corps of Engineers provides is primarily related to technical oversight and contract management.

In FY 2004, the Army Corps of Engineers estimates support will be provided to over 60 various Federal agencies. The estimated dollar value of our efforts including construction is estimated to be $900 million. The actual program size will depend on several factors: the requesting agency's appropriation which is often not known until the first quarter (or later) of the fiscal year, final agency decisions made on how and when the appropriated funds will be dispersed for projects, and the magnitude of natural emergencies.

MAJOR FEATURES OF THE FY 2003 PROGRAM:

The Corps executed $850 million worth of work in support of non-DoD agencies. This work consists of one large (~$300 million) reimbursable program [Superfund program for the Environmental Protection Agency (EPA)] and support to approximately 60 other Federal agencies and the Government of the District of Columbia, ranging in size from a few thousand to over $100 million, plus unique technical services (not readily available from the private sector) to some State and local governments. Since 1998 the Corps has had special Congressional authorization to provide engineering, environmental and construction management services to the District of Columbia Public Schools to assist them in bringing their schools up to building and safety code requirements. The Corps also supports EPA on its Construction Grants programs as well as performing review and coordination of the planning, design and construction of EPA facilities.

Examples of work for other Federal agencies in FY 2003 include environmental compliance assessments for the Natural Oceanic and Atmospheric Administration (NOAA); construction grant monitoring for the Department of Housing and Urban Development; design and construction of facilities for Department of Justice agencies, Immigration and Naturalization Service and Bureau of Prisons; and study, design, engineering, and construction assistance for various Department of Interior agencies such as the National Park Service, the Fish and Wildlife Service, and the Office of Insular Affairs. One potentially large and unpredictable program is that of the Federal Emergency Management Agency (FEMA). The largest component support to FEMA occurs as a result of natural disasters where the type and magnitude of support is unpredictable.

ACCOMPLISHMENTS FOR FY 2004

The Corps will execute approximately $900 million in support of other agencies programs in FY 2004 which will include: Environmental Restoration related work - $300 million of work related to the EPA's programs and $50 million of environmental restoration work for other agencies and Facilities and Infrastructure related work - $550 million of work related to engineering, design and construction such as the design and construction of dormitories, administration and detention facilities for the Immigration and Naturalization Service, emergency management in support of FEMA and improving homeland security measures for several other Federal agencies.

AUTOMATION COSTS

The Army Corps of Engineers utilizes automated information systems (AIS) in all phases and aspects of its operations from the planning and design of projects through their operation and maintenance; from the collection and analysis of hydrographic data to control flows in the nation's rivers to the management of fiscal and human resources; and from the search for legal precedents to the review of construction contractor performance histories. Civil Works expenditures for automated information systems include acquisition of commercial software packages and the design and development of applications to meet unique engineering requirements; the acquisition of personal computers for use on desks and the mainframes for processing centers used by thousands of employees; and the leasing of long distance lines for e-mail and high speed transfer of engineering and other data among Corps of Engineers locations.

The projected FY 2004 Civil Works costs of automation are displayed for two main categories: acquisition of hardware and associated commercial off-the-shelf software (COTS) and automated information systems (AIS). In addition, an estimate of FY 2004 Civil Works cost of automation personnel is provided below.

Table A shows projected hardware and associated COTS acquisition costs for FY 2004, some of which are capitalized through the Revolving Fund's Plant Replacement and Improvement Program (PRIP). Civil Works requirements for automation hardware also include items such as engineering work stations, file servers, personal computers, printers and other peripheral equipment costing less than $25,000, or items which will be utilized only in support of a single project, including research and development activities at Corps laboratories, and will be acquired with project funds. Such items are not eligible for PRIP financing since they do not meet the threshold for capitalization, or do not support more than one project. Funding for these items will be either through the General Expenses appropriation, district or laboratory overhead accounts, or specific Civil Works programs or projects.

Table B shows estimated FY 2004 Civil Works funding requirements to support automated information systems (AIS). An automated information system is any application software using COTS or custom-developed code to satisfy the information needs of a business process or program, and includes hardware and communications specifically required for using the software. These have been grouped by whether they are in use Corps-wide or were developed to meet local requirements.

The estimate of FY 2004 direct labor costs for the professional Computer Specialists, Computer Scientists, Programmers, Systems Analysts, Programmer Analysts, Information Management Planners, Telecommunications Specialists, and the Computer Technicians and Assistants which are charged to Civil Works projects and appropriations, is $27,260,260. Not included in the estimate are the costs of visual information specialists, photographers, print specialists, librarians, mail clerks, or the budget analysts and other support personnel who comprise a typical Corps information management office.

Source of data for Tables A and B is the Information Technology Investment Portfolio System (ITIPS). The estimate of Civil Works cost of automation personnel is from the Army Civilian Personnel Employee Reporting System (ACPERS).

TABLE A
HARDWARE ACQUISIION

Item	PRIP Funded	FY 2004 Civil Works Requirement
Corps of Engineers Enterprise Infrastructure System	X	2,000,000
Miscellaneous Information Technology Equip costing More than $25,000 and capitalized through the PRIP		
North Western Division		1,215,974
Great Lakes and Rivers Division		994,500
South Pacific Division		152,900
Southwestern Division		300,000
Subtotal Miscellaneous ADPE	X	2,663,374
Miscellaneous Information Technology Equip costing More than $25,000 but not capitalized through the PRIP		
Mississippi Valley Division		739,000
North Atlantic Division		869,700
Northwestern Division		400,000
Great Lakes and Rivers Division		3,383,800
Pacific Ocean Division		385,800
South Atlantic Division		565,350
South Pacific Division		1,231,551
Southwestern Division		3,625,560
Trans Atlantic Center		370,000
Institute for Water Resources		1,455,000
Marine Design Center		85,000
Headquarters		187,580
		13,298,341
Information Technology Equipment costing less than $25,000		
Automated Engineering Tools		12,547,361
Automated Information Systems		244,191
Infrastructure (includes networks, office automation, communication, etc.)		38,420,931
Information Management Programs (includes library, records management, printing & publications, visiual information, etc.)		5,498,524
Standard automated information systems support		3,899,303
		60,610,310
Total		78,572,025

TABLE B
AUTOMATED INFORMATION SYSTEMS

CORPS-WIDE SYSTEMS	STATUS	FY 2004 Civil Works Requirement
Computer Aided Structural Engineering	Maintenance	1,300,000
Spt Std Sys - GIS-V - CW	Maintenance	175,000
CE Automated Legal System	Maintenance	244,000
Corps of Engineers Lessons Learned System	Maintenance	140,000
Information Technology Investment Portfolio System	Maintenance	107,156
Knowledge Management - Horizontal Enterprise Portal	Maintenance	215,860
ENGLink Interactive	Maintenance	2,600,000
PROMIS Phase II	Maintenance	2,386,507
Design Review and Checking System	Maintenance	249,600
Arch-Engr Contract/Constr Contract Appraisal System	Maintenance	417,460
Computer Aided Cost Engineering System	Maintenance	475,000
CW Operations and Maintenance Budget System	Maintenance	200,000
PAVEMENT- Computer Assisted Structural Engrng	Maintenance	40,040
Resident Management System	Maintenance	850,000
Corps Water Management System	Maintenance	2,138,000
Project & Resource Information System For Mgm	Maintenance	185,000
Equipment Manual	Maintenance	145,000
Bridge Inventory System	Maintenance	70,000
Numerical Models	Maintenance	980,000
Registry of Skills	Maintenance	24,000
Web Enabled ACASS/CCASS	Maintenance	45,000
SPECSINTACT	Maintenance	125,500
Corps SignPro	Maintenance	123,383
Operations & Maintenance Business Info Link PLUS	Maintenance	3,888,450
USACE Integrated Historical Information System	New	12,500
PDSC- TMIS	Maintenance	512,479
Vehicles Information Management System	Maintenance	181,475
Automated Personal Property Management System	Maintenance	407,150
Facilities and Equipment Management System	Maintenance	5,900,000
HTRW Lessons Learned System	Maintenance	6,000
Program/Project Management Information System	Maintenance	380,000
Programs and Projects Delivery System	Maintenance	129,250
Digital Visual Library	Maintenance	8,000
Standard Procurement System (SPS)	Maintenance	81,298
Real Estate Management Information System	Maintenance	3,042,000
COE Financial Management System	Maintenance	7,587,120

TABLE B
AUTOMATED INFORMATION SYSTEMS

CORPS-WIDE SYSTEMS	STATUS	FY 2004 Civil Works Requirement
Force Configuration	Maintenance	40,000
COE Enterprise Management Information System	Maintenance	324,000
Integrated Manning Document	Maintenance	13,686
Small Business Information System	Maintenance	36,250
Accident Experience and Analysis System	Maintenance	33,999
Corps of Engineers Enterprise Information Services	Maintenance	18,740,000
Deployable Tactical Operations System	Maintenance	1,815,500
E-Mail Mandatory Center of Expertise (MCX)/ (DMS)	Maintenance	1,295,813
Corps Enterprise Architecture (formerly A2K+)	Maintenance	284,000
NSDI Clearinghouse Website	Maintenance	60,000
Video TeleTraining Studio	New	174,000
TOTAL CORPS-WIDE SYSTEMS		58,189,475
CORPS LOCAL SYSTEMS (excludes local systems costing less than $10,000)		
MISSISSIPPI VALLEY DIVISION		
Automated Training Management Program (ATMP)	Maintenance	50,000
Illinois Automated Data Acquisition System	Maintenance	12,000
Automated Incident Reporting System	Maintenance	15,000
Spt Std Sys - CEEIS - St. Paul	Maintenance	520,000
NORTH ATLANTIC DIVISION		
CADD-Computer Aided Designed and Drafting	Maintenance	6,350
Emergency Operations Center	Maintenance	50,475
Residential Communities Initiative	New	22,000
EDMS - Electronic Document Management System	Maintenance	10,000
IT Security System - CENAE	Maintenance	20,000
FY03 CEEIS - CE Enterprise Infrastructure Services	New	1,075,000
NORTHWESTERN DIVISION		
CENWO Computerized Maintenance Management System	Maintenance	45,000
CENWO Power Plant Control System - Replacement	Maintenance	305,625
Construction Management System	Maintenance	25,000

TABLE B
AUTOMATED INFORMATION SYSTEMS

CORPS LOCAL SYSTEMS	STATUS	FY 2004 Civil Works Requirement
PACIFIC OCEAN DIVISION		
Electronic Time Sheet	Maintenance	20,000
Regulatory Imaging System - Permit Support	Maintenance	60,000
SOUTH ATLANTIC DIVISION		
SAS - Regulatory Analysis and Management System	Maintenance	100,000
SAS - Project Related Data Systems	Maintenance	40,000
Requests for Information	Maintenance	80,500
Workload Management System	Maintenance	40,000
Conversion To OMBIL	New	125,000
SOUTH PACIFIC DIVISION		
SPD EOC Regional Management System	Maintenance	22,000
INSTITUTE FOR WATER RESOURCES		
Office Automation - NDC-C	Maintenance	100,000
CEEIS CHARGES	Maintenance	150,000
ENGINEER RESEARCH AND DEVELOPMENT CENTER		
ERDC - Lab Demo Pay Pool System	Maintenance	53,750
ERDC - Flat Rate Burden System	Maintenance	10,500
TOTAL CORPS LOCAL SYSTEMS		2,958,200
TOTAL AUTOMATED INFORMATION SYSTEMS		61,147,675

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2004

Summary of Budget Request for Inland Waterway Trust Fund Projects

Project Name	Construction, General Appropriation $	Inland Waterways Trust Fund $	Total $
Construction			
Inner Harbor Canal Lock, LA	To be determined	3,500,000	To be determined
Kentucky Lock and Dam, Tennessee River, KY	To be determined	12,433,000	To be determined
Locks & Dams 2, 3 & 4, Monoghela River, PA	To be determined	17,500,000	To be determined
Marmet Lock, Kanawha, River, WV	To be determined	26,077,000	To be determined
McAlpine Locks & Dams, IN & KY	To be determined	13,050,000	To be determined
Olmsted Locks and Dam, IL & KY	To be determined	36,500,000	To be determined
Robert C. Byrd Locks and Dam, WV & OH	To be determined	1,250,000	To be determined
(Locks)	To be determined	(500,000)	To be determined
(Dam Rehabilitation)	To be determined	(750,000)	To be determined
Winfield Locks and Dam, WV	To be determined	1,000,000	To be determined
Total - Construction	To be determined	111,310,000	To be determined

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2004

Summary of Budget Request for Inland Waterway Trust Fund Projects

Project Name	Construction, General Appropriation $	Inland Waterways Trust Fund $	Total $
Rehabilitation			
Lock and Dam 3, Mississippi River, MN (Rehab)	To be determined	300,000	To be determined
Lock and Dam 11, Mississippi River, IA (Rehab)	To be determined	656,000	To be determined
Lock and Dam 12, Mississippi River, IA (Rehab)			
Lock and Dam 24, Mississippi River, IL & MO (Rehab)	To be determined	6,500,000	To be determined
London Locks and Dam, Kanawha River, WV (Rehab)			
Total - Rehabilitation	To be determined	7,456,000	To be determined
Gross Total - Construction and Rehabilitation	To be determined	118,766,000	To be determined
Reduction for Anticipated Savings and Slippage	To be determined	(8,766,000)	To be determined
Net Total	To be determined	110,000,000	To be determined

Justification of Estimates for Civil Works Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 2004

SUMMARY OF APPROPRIATIONS

APPROPRIATION TITLE	FY 2003 Budget 1/	FY 2004 Request	Increase (Decrease)
General Investigations	$ 108,000,000	$ 100,000,000	$ (8,000,000)
Construction, General	1,440,000,000	1,350,000,000	(90,000,000)
Operation and Maintenance, General	1,979,000,000	1,939,000,000	(40,000,000)
Flood Control Mississippi River and Tributaries	288,000,000	280,000,000	(8,000,000)
Regulatory Program	151,000,000	144,000,000	(7,000,000)
Flood Control and Coastal Emergencies	22,000,000	70,000,000	48,000,000
General Expenses	161,000,000	171,000,000	10,000,000
Revolving Fund	0	0	0
FUSRAP	141,000,000	140,000,000	(1,000,000)
Permanent Appropriations	15,502,000	15,102,000	(400,000)
Total	$ 4,305,502,000	$ 4,209,102,000	$ (96,400,000)

1/President FY 2002 Budget.